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THE PROPHYLAXIS OF CANCER*

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Among the great problems which confront the world to-day is that of cancer. The question of tuberculosis has been practically answered. The bacillus is known, as well as its modes of entrance to the body, its varying methods of attack and the causes of death from the disease. Up to a few years ago what the public learned of tuberculosis was through the advertising of interested dealers of patent medicines, promoters of health resorts and the exaggerated statements of irregular practitioners. To-day, with what may be called a world movement, tuberculosis is gradually being controlled and the percentage of deaths is yearly being lessened.

In view of the wonderful progress made in the prevention, care and curability of tuberculosis which has developed in the short time since the public was first taken into the work as assistants, is it not time that we should more generally diffuse what knowledge we have of cancer?

This world-wide disease is not confined to any certain people, but occurs among all races of mankind, and, indeed, is found throughout the vertebrate kingdom. Fish often have goiter, and in certain waters cancer seems to develop from these secondary changes in the thyroid. The disease also occurs in birds. In over a thousand instances primary cancer has been found in mice and thousands of cancers have been grown by inoculation (Bashford). Domesticated animals are somewhat more susceptible to it than animals in the wild state. This fact is explained as due to their longer life, the disease being more common in the relatively aged in both man and animal. While cancer is said to be uncommon in some countries, in Japan, for instance, there are 25,000 deaths a year from the disease in that country. In England it is estimated that, of individuals over 35 years of age, one out of every eight women and one out of every eleven men die of cancer, a greater death-rate for age period than from tuberculosis. We are not far behind in this country, with 80,000 cases constantly in progress and over 40,000 deaths each year from the disease.

It is undoubtedly true that the public is at present looking more anxiously for a specific or cure than for prevention of cancer, but it is in the line of prevention that the medical profession has assumed its present position of importance in the world. Practically all of the acute diseases with which the population of the earth is afflicted are due to bacterial infection. It follows naturally, therefore, that the medical profession should search diligently for the germ of cancer, that an antagonistic remedy may be developed for its cure.

While it would be extremely interesting and useful to discover the parasitic origin, if such it be, of cancer, it is not vital. It requires but little judgment to decide that to prevent disease is better than to cure it. To prevent a case of diphtheria should be greater cause for elation than greatly to reduce the mortality by the use of antitoxin. The use of antibodies or serums as cures when the disease has been permitted to develop, and their use as vaccines for the prevention of disease, should by no means be discredited. It has been by such prevention and control of disease in children, and the reduction of mortality in adults, that the length of human life has been increased, and more people now than formerly reach a cancerous but not a proportionate old age. This fact, together with better diagnostic facilities and more carefully collected vital statistics, makes it appear that cancer is on the increase. The sooner this subject becomes one of general discussion, as tuberculosis has been in the various scientific meetings and in literature, the sooner may the adult hope to reach old age.

What is cancer? I shall not enter into a special description of cancer and its varieties beyond quoting briefly from Dr. L. S. Pilcher, who described the condition as follows:

> It is in the lawless proliferation of preexisting epithelial cells in luxuriant, irregularly arranged masses that invade underlying and surrounding tissues, permeating, destroying them, and finally themselves attaining a mass which can no longer be adequately nourished by an accessible blood supply, and which itself then falls into central decay, while at the periphery the process still goes on, that cancer consists.

We must consider the irritation of groups of epithelial cells as the primary origin, and that such an arrangement occurred as a prenatal inclusion (this is questioned), or postnatally as a result of some mechanical or inflammatory condition. There is then a cell proliferation which becomes cancerous only when there is infiltration of the tissues.

From all the information which has been presented on the subject it is evident that there often exists a precancerous condition. The unproved type, that of prenatal displacement, we are unable to recognize. The postnatal type we recognize at least in the presence of tumors of a temporary, benign character in their more regular and uniform arrangement of structure and cells, such as warts of the skin, papillomata of the bladder and fibromata of the breast, as well as cell inclusions which occur in the scars of inflammations, or burns and the results of long-continued local irritation to tissues. These growths resemble the embryologic development of

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cells merely in the power of cell multiplication and in the continuance of type in the metastasis and transplantation of the growth. Youth, because of the vigorous growth of the cells, is less subject to cancer, yet more susceptible to poisons, but the active lymphatics in youth cause rapid dissemination of disease when it occurs.

Bashford shows that, while no race of mankind is exempt from cancer, the predilection for the disease in certain countries is more from local irritation than from the peculiarities of climate, soil and diet. I shall mention only a few well-known sources of irritation as a cause of special cancer. For instance, carcinoma of the mouth is rare in European women but common in men, yet in Ceylon and India women suffer greatly from cancer of the mouth because of the chewing of betel-nuts and holding the plug in the mouth. In this country leukoplakia carcinoma is found mostly among those who use tobacco. Cancer of the skin of the abdomen, a rare condition, is common in natives of Kashmir, who wear abdominal charcoal heaters next to the skin. Lip or pipe cancer is an example of radiant actinic irritation, and there are numerous tumors from chemical and infective sources. Chimney-sweep cancer and innumerable other special forms are seen. It has been shown also that it may occur in a circumscribed area, and that any epithelial lining or covering may become cancerous. Why this is not still more common following chronic irritation or, if due to a special germ or parasite, why it does not occur after acute simple injuries it is impossible to say.

It is generally supposed that carcinomas often develop from severe single injuries, but there is no evidence that single injury does other than call attention for the first time to a preexisting tumor or hasten the growth in early or dormant malignancy. It is an apparent fact that in classifying the causes which may render precancerous conditions active we should include nerve-cell fatigue, such as is seen in the modern business world. The organs of convenience, *e. g.*, stomach, bladder and large bowel, which were added late to primitive life, have poor cell resistance and are prone to cancer degeneration.

Cancer of the stomach, bladder and large bowel undoubtedly often result from chronic local irritation. The tumor may often originate about the base of the appendix and in the wall of the cecum. It has been found by MacCarthy in a study by serial section of over 5,000 appendices which had been removed for so-called chronic subacute appendicitis, that 0.5 per cent. of them were carcinomatous, although the external appearance of these appendices did not always indicate such a condition. The diagnosis was made at operation in only 23 per cent. of the cases. It has been shown that diverticulum of the large bowel is sometimes the cause of cancer, and in such cases it is only in finding comparatively early growths which have not destroyed the diverticulum that the original location of the change can be shown. Therefore, in advising the early removal of chronic, inflamed appendices, we are avoiding the possibility of the development of a few cases of unrecognized cancer, not to mention the possibility of its development in some of the appendices which are removed in a precancerous condition.

Just at this time ulcers of the stomach seem to have taken a leading position as the cause of cancer development. It is not hard to understand how cell groups may become isolated by connective tissue development as a result of erosion or ulceration. This condition is becoming more and more commonly recognized and it is estimated that a large percentage of the cases of cancer of the stomach have developed on ulcer. The trend of popular treatment in gastric surgery is to recognize the cancerous tendency of ulcers and excise them in their precancerous condition, reserving gastrojejunostomy for the cases of obstructed pylorus from closure or probable stenosis following excision of the ulcer. The question presents itself as to whether the supposed repeated medical healing of ulcers relieves the tendency to cancer.

Papillomata of the bladder are often found in the benign stage, yet we know that they develop cancer, and they should, therefore, be thoroughly removed as a precancerous condition.

It has been noted that the prostate gland is very subject to hypertrophy and hyperplasia, yet operation for its removal has been advised only when the distress and necessity become very great. Our present knowledge of the condition shows a high percentage of cancerous changes in the gland, which should be taken into consideration in deciding the advisability of operation before the proliferation of tissue becomes an infiltration, and some relief an absolute necessity. The mortality following operation in this early stage is low in comparison with that resulting from deaths of patients with symptoms who have not been operated on, to say nothing of the suffering which will have been avoided. Operation, however, is not advised merely because there is hypertrophy, which is common, but to avoid the changes incident to chronic irritation when it exists.

Patients with thyroid tumors who require operation, prove that chronic irritation of an adenoma may cause carcinoma in about one in twenty-five or thirty cases. A rapidly growing hard goiter should be looked on as a menace and early operation advised.

In a consideration of the irritative effects of the tumors of the body of the uterus, in which fibroids are common, we find 1⅓ per cent. to be sarcomatous and 2.5 per cent. carcinomatous; yet the fibroid itself would be capable only of sarcomatous malignant change. In 1,000 hysterectomies for fibroids in women over 50 years of age, Sutton found that 10 per cent. of the tumors were cancerous. The condition will be found fifteen times in the cervix to once in the body of the uterus, yet in the cervix it is associated with fibroids in only ⅓ per cent. Of the cases of cancer of the body of the uterus 40 per cent. are associated with fibroids, that is, over one hundred times more frequently than in cervical cancer. The first stage in such cases is adenomatous proliferation of the endometrium; the second, lawless cell-growth and invasion, or cancer. Fibroid of the uterus, while a fairly common condition, may often not be realized by the patient. Operation should not be advised in all cases, but in those which are giving symptoms; myomectomy in the young and hysterectomy in the older individual being the methods of choice. Chronic erosions are probably a greater menace than is commonly supposed, and they should receive attention.

A few years ago a tumor of the breast of a woman 35 or more years of age, which was not of infective origin, was considered malignant in proportion of four to one, and it seemed probable that nearly one-half of the tumors which were considered benign at the time of operation eventually became malignant. In the last ten years the increasing knowledge of the public, which has led to earlier operation, has reduced the proportion of probable malignancy at least 10 per cent. Tumors of the breast, not themselves malignant, may create a

change in the adjacent breast tissue by chronic irritation, or they may change within their own structure. Well-collected statistics show that the results following operations for cancer of the breast indicate that 80 per cent. of the patients remaining well three years were operated on within six months of the development of the tumor, and about an equal number, who had no palpable glands in the axilla at the time of operation, remained well. It is obvious that a patient should not be obliged to have the growth of a tumor watched for marked evidences of malignant change, a delay which might reduce the chances from the best average of cure; that is, about 50 per cent. for three years, to a possible 20 per cent. cure, or much less.

Considering that the mammary gland is very prone to cancer, are we justified in hesitating to advise early removal for examination of supposed simple tumors as freely as in those which are considered malignant? Physicians should not assume the responsibility of delay, but should inform patients that in retaining this source of chronic irritation they must do it at their own risk and responsibility. From a careful observation of the operative cure of cancer of the breast it appears quite probable that an early operation, even though incomplete so far as the removal of muscle, axillary lymphatics, fat and fascia is concerned, will still give better results than the most radical operation which is done late. I by no means wish to decry the late radical operation, but would urge, rather, that the radical operation be performed early in order to have the cures approximate 80 per cent.

Are there cures for cancer? At present we recognize none other than that obtained by removal from the body by means of knife, cautery, paste or destructive rays. All methods used to cause a disappearance by absorption within the body by body tissues or fluids are as yet failures as cures, although growths have been checked and even shrunken by such measures.

It must be admitted that there is a wide difference in the malignancy of cancer, in the character of its growth and the tissues involved, yet but little consideration is given to another important point—that there is just as wide a variation in the resistance of the individuals for the same type of cancer. Some patients who have this power of resistance and who remain well for several years after operation are often claimed by the surgeon as examples of the benefits of some particular method of operation or of some unusual care which has been given them. Such patients do well with oft-repeated secondary operations, while others melt away with the disease or through metastasis.

A promising effort is being made to utilize cytolysis by using serums made from patients proved resistant to cancer, and from embryos of the same species, to create a destruction of the cells of embryonic type and character and power of regeneration, as seen in cancer.

Cancer is a disease of adult life. The patient is naturally the one most vitally interested, and he should be informed, in the precancerous stage, of his danger. We lose many opportunities for disseminating life-saving knowledge to the public by a mistaken regard for the sensitive feelings of the patients, until their condition has become practically helpless from an operative standpoint. The layman requires considerable explanation before he can be made to realize that the risk is not in surgery, but in delayed surgery. He considers all operations alike in their danger and severity, while in reality there is a very wide variation. It is a simple operation to remove stones from the gall-bladder. A delayed operation may require their removal from the cystic or even the common duct, and very often a pancreatitis will have developed. On an average, one in thirty of these cases has developed cancer as a local condition around a gall-stone which has chronically irritated some mucous area of the gall-bladder duct. In nearly all of the cases of primary cancer of the gall-bladder and liver ducts gall-stones have been found.

If surgery for cancer is in disrepute to-day it is partly because too large a proportion of patients are accepted without explanation for operation at a stage when there is no possibility of cure, and when their families, if not themselves, should have been informed of their hopeless condition. If they had been left they would have served as living examples of the results of delay instead of the unsatisfactory results of ill-advised surgery.

We can, however, say this: that we know nearly or quite as much concerning cancer as we do of other medical and surgical diseases. The danger of local irritation of a chronic character has been underestimated. Our present knowledge of the prophylaxis of cancer indicates that all tumors should have a medical examination and the majority of them a surgical consultation in order that we recognize the precancerous condition, and reduce mortality by prevention.

ETIOLOGY OF CANCER OF THE SKIN*

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In the following brief report on cancer of the skin I shall limit myself to a consideration of the epithelial forms of cancer. Even here I shall not be able to go into any detailed discussion and I must ask for indulgence in case I should express my opinions on certain questions without being able to give the data on the basis of which such opinion has been formed.

The etiology of cancer of the skin is, of course, on the whole not different from the etiology of cancer in other parts of the body, and the same principles underlie the formation of cancer in various organs. Cancer of the skin differs from cancer in other parts of the body inasmuch as the pathologic changes taking place in the skin are so much more accessible to direct observation. The clinicians have taken advantage of this circumstance, and to the clinicians we are indebted for some interesting discoveries concerning the causation of cancer of the skin.

EXTERNAL AND INTERNAL FACTORS

In following the origin of cancer of the skin we recognize most clearly the importance of external factors, and to me this is one of the most significant facts. Another conclusion that impressed itself on me in considering the various forms of cancer of the skin is the presence of a second condition which we may designate in a preliminary way as the internal factors.

Now, in the different varieties of cancer of the skin we see these two sets of factors associated in various combinations. If the external factor is very potent the internal factors can be dispensed with, and if the internal factors are very potent the external factors play only a subordinate rôle. There are intermediate

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* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910

conditions in which a cooperation of the two agencies is of importance. To cite a few examples: In Roentgen ray cancer the external factor alone seems to be sufficient. An internal factor plays apparently a very negligible rôle in this case. It is perhaps similar but not quite as pronounced in the case of the chimney-sweep cancer of the scrotum. On the other hand, in xeroderma pigmentosum the internal factor is very potent and the external factor, although present, is without influence in normal persons of the corresponding age.

It is somewhat similar in persons affected with pigmented moles. The internal factor leading to the production of nevi is of preponderating importance, while in the case of normal people the external factor would be of a very trivial character. In the cancer developing in the skin of the sailors and in old people we are not in a position at the present time to know the relative distribution of the external and internal factors. We lack as yet statistical data sufficiently comprehensive to allow us to state what percentage of persons, in whom the external agency acted with a definite intensity over a certain period of time, became affected. Only on the basis of definite, we might call it, quantitative determinations, could we advance in this direction.

Let us now attempt to analyze those factors somewhat more closely. The external factors[1] of importance are (1) light rays, especially the short-waved and the ultraviolet rays; they play a part in the cancer developing in seamen long exposed to the rays of the sunlight; they determine the lesions in xeroderma pigmentosum, where the lesions are found in those parts that are more or less exposed to the light. They are in all probability also concerned in the causation of cancer which is found in old people on the basis of keratoma senile, or the so-called seborrheic wart. These changes are mainly found on parts of the body exposed to light. The Roentgen rays are of course responsible for the cancer of Roentgen ray operators. Next, certain chemical factors are undoubtedly the cause of a certain number of cancers. Soot, and especially hard coal soot, causes cancer in chimney-sweeps, and certain chemical products induce cancerous growths in paraffin and coal-tar workers. In these cases the irritating substance, the chemical character of which has not yet been ascertained, attacks the skin directly, reaching it from the outside. In persons taking arsenic over long periods of time this substance influences the skin after having previously been absorbed from the intestinal canal. Mechanical factors are also of importance. There is no doubt that mechanical irritation plays its part in transforming pigmented moles into cancer. And if we include the cancerous affections of the tongue and lip it is certain that the friction of imperfect teeth or the mechanical effect of a pipe may cause cancer. In the latter case heat may perhaps play a certain part, while a combination of heat and mechanical irritation, or either alone, acts in the case of Kangri cancer, observed in Tibet. Here a small stove carried near the skin of the abdomen causes a peculiar cancer of the skin. Among the external factors responsible for cancer we may also mention those conditions or organisms that cause affections, such as lupus, psoriasis, and leucoplakia of the tongue, and various chronic ulcerations and scars, as a sequel of which cancer sometimes develops in the skin and in the tongue. Of course, we must realize that such a sharp differentiation between external and internal conditions does not do full justice to the complexity of nature, and that, *e. g.*, a condition that at one time acted as an external factor may later on become transformed into an internal factor and only after such a transformation has taken place it may act as a cause of cancer. And this is what some pathologists, indeed, assume to take place. A distinction between conditions outside the organism, conditions inside the organism but outside the epithelium and conditions inside the epithelium would be more correct.

In regard to the internal conditions our knowledge is much less definite. We know that melanotic cancer frequently starts from a pigmented mole and that the latter is a condition present at the time of birth or developing in very early life, and probably due to developmental abnormalities which may be hereditary. A certain localized congenital and also hereditary condition is therefore one of the internal factors leading to cancer.

In xeroderma pigmentosum some internal factor making the skin peculiarly susceptible to the action of light and ultraviolet rays is undoubtedly present. In the absence of positive knowledge we may propose the following hypothesis: We know that certain substances, especially fluorescent stains, are able to sensitize living cells as well as ferments to the injurious action of light. We furthermore know that cattle that feed on buckwheat (*Buchweizen*) become very sensitive to the influence of light rays, and skin affections follow if the cattle are exposed to the light. It is possible that in xeroderma pigmentosum a substance is produced internally that sensitizes the skin and certain mucous membranes to the action of light; the last stage of the light action in a sensitized skin is the development of cancer. Whether primary differences in the anatomic structure of the skin and mucous membranes are present in patients affected by xeroderma pigmentosum has to my knowledge never been examined. Nor is anything known, so far as I am aware, in regard to the sensitiveness of the skin in such patients toward the action of other than light and ultraviolet rays. Whatever the ultimate character of this internal factor is, it must in some cases have been indirectly transmitted through the germ cells of the parents, probably in the form of a preparatory substance, inasmuch as it is known to occur in sisters or brothers of the same family. Nothing definite is known concerning the existence of internal factors in the cancers of old age, cancer after use of arsenic, cancer in chimney-sweeps and other similar conditions. We might be inclined to believe in the presence of some predisposing internal factors in such cases inasmuch as we notice that only certain persons are affected by cancer or seem, at least, to become affected much more readily among a much greater number of people exposed to the same injurious influence. We must, however, be well aware of the fact that in such cases we cannot be certain that the same quantity of external injury, if we may thus express it, acted on all the persons exposed.

EMBRYONIC THEORY

There are other internal factors to which a great or, we may say, the almost sole responsibility has been attributed. I refer especially here to the views expressed by Borrmann. This author made extensive microscopic studies of early stages of carcinomata of the skin, and came to the conclusion that cancer of the skin is in almost all cases due to embryonic malformation which leads to complete separation of certain parts of the

1. Interesting observations concerning the action of etiologic agencies have been made in this country, among others, by Hyde (action of light), Hartzell, Schamberg (action of arsenic), Wolbach (effect of Roentgen rays) and Councilman and McGrath (xeroderma pigmentosum).

epithelium from the rest of the epidermis and their transposition into the corium. Thus the corium carcinomata are produced which include, for instance, the cases of rodent ulcer. Or certain parts in the epidermis may remain in an undifferentiated condition and give rise later to the prickle-cell, keratinizing carcinomata, according to Borrmann.

It is impossible here to go into a detailed criticism of his observations and deductions. Suffice it to say that the results of histologic examinations of others, among whom I might mention H. H. Janeway, do not uphold his view. The typical carcinoma of the skin originates through a direct downgrowth of the surface epithelium or its appendages, and all the evidence at hand proves that, although perhaps in a few cases, carcinoma may take its origin in misplaced embryonal rests, embryonal displacements are of no or of very slight importance in the etiology of the large majority of the cancers of the skin.

RIBBERT'S THEORY AND THE CANCER CELL

In the last analysis Borrmann's views are based on the hypothetical conceptions of Ribbert, and, inasmuch as the views of this author had a dominating influence, at least for a certain period of time, we must briefly refer to the latter. In the course of time Ribbert changed his views considerably, so that at present little is left of what characterized his original conceptions. But the distinctive feature of his hypothesis was the following:

The carcinoma cell in its last analysis is nothing but an ordinary regenerating epithelial cell, such as is seen in wound healing. The only difference between cancerous and ordinary regenerative growth is to be sought in some secondary conditions which do not permit the epithelial cell to unite with its kin to form again a normal organ. In most cases the presence of the inflamed connective tissue is responsible for the separation of certain parts of the epithelium. This is the principal conception of Ribbert's theory, and the facts do not sustain it. The carcinoma cell is not an ordinary regenerating cell. The latter may be put into whatever environment we choose; it always follows the laws that are valid in the case of regeneration. The carcinoma cells remain carcinoma cells even if on both sides they are surrounded by its kin, the normal epithelium, or wherever they may be implanted. Indeed, the transformation of an epithelial into a carcinoma cell takes place, in many cases at least, at a time when the epithelial cell is still in union with the surrounding epithelial tissue. All the experimental evidence at our disposal admits of but this conclusion. Epithelium may grow in agar or blood-serum in the body or in intimate contact with connective tissue and the blood-vessels; the epithelial cells do not behave like carcinomatous cells; on the other hand, we may transplant carcinomatous cells and they will always grow as carcinomatous cells, if growth can be obtained.

This invariable difference between ordinary epithelial and carcinomatous cells induced some writers to seek for a preformed internal factor in the congenital constitution of the cell, and especially of their chromatin. This view appears to be as little justified as the opinion that as a rule cancers of the skin are due to embryonal misplacements. Nor would I recommend at the present state of our investigations the designation of carcinomatous cells as "new cell races" or the use of the term "anaplasia." I believe that all such terms are unnecessary, and that they frequently tend to obscure the real problems which consist in determining functional relations.

AGE AS A FACTOR

There remains another condition which might be classed among the internal factors, and on which great stress has been laid by various writers, namely, old age.

It is certainly correct to state that carcinoma occurs more frequently in advanced age and that certain cancers of the skin are especially found in the senile skin. If, however, we analyze more searchingly what is called old age in the case of its epidermis we will find that we have to deal with a complexity of factors, among which external injurious influences play directly or indirectly the most prominent rôle. The commonly assumed basis for old age is the conception of a certain deterioration in the machinery of the cell which is necessary to occur in the course of time and which is inherent in its structure. As I pointed out nine years ago, I believe this view to be erroneous, especially as far as the cells of the epidermis are concerned. There are weighty reasons why we should believe in the potential immortality of the epidermal cells rather than in their necessary aging. If the senile changes take place in the epidermis they are according to this view due to a long-continued cumulative action of injurious external agencies, as light, heat, mechanical insults, and so on, which acted either directly on the epithelial cells or on the stroma on which the latter live; injurious influences which made themselves felt continuously and from the effects of which no recovery was therefore possible. As far as the epidermis is concerned, old age is therefore a term designating the effects of long-continued external injurious factors. Instead of explaining various skin lesions as due to a premature senescence of the skin we should, it appears to me, take the opposite position and explain the senile changes of the skin as due to the action of injurious external influences.

MICRO-ORGANISMS

By what mechanisms do the external factors which have been enumerated affect the epidermis and how can they call forth a cancerous proliferation? In the first place we might think of the activity of micro-organisms that have an intracellular existence and are therefore constantly acting on the epithelial cells, stimulating them to active cell division and to invasion into the neighboring tissue, such stimulation being to some extent accompanied by changes in cell metabolism calling forth new enzymatic activities. We know, indeed, that certain micro-organisms as those of variola and vaccine and molluscum contagiosum call forth epithelial cell proliferation, and Borrell designated such a condition under the term epitheliosis in contradistinction to epithelioma. And there exist observations made in the course of the experimental investigation of cancer which could be readily explained by the assumption that micro-organisms have an etiologic significance. On this basis all the changes induced by the various external and internal conditions which we mentioned would only serve as means of introducing a certain micro-organism into the epidermis. Although at the present time we cannot deny, and although we must keep in mind such a possibility, we must confess that the probabilities of such a connection between external agencies and cancer appear exceedingly slight at the present time. No tangible indication of micro-organisms that withstood the test of later investigators could be found.

IRRITANTS

On the other hand, we see before us the prospect of an ultimate understanding of the connection of external irritants with cancer by a more penetrating analysis of

the biology of the various tissues, and especially will it be necessary to inquire into the influence which external agencies have on growth processes. Concerning the action of Roentgen rays and radium, considerable stress has been laid on their necrotizing effect. But especially, recent studies have shown that, independently of their necrotizing action, these radiations have a distinctly stimulating effect on the epithelial cells; we furthermore learned that under the localized influence of certain organic derivatives, especially aromatic amido derivatives a limited infiltrative growth of epithelium into the deeper connective tissue structures may take place. It was mentioned above that a combined action of internal and external factors caused carcinomatous growth in certain, probably in many, cases. Recently some advance has been made in the experimental analysis of formative stimuli which throws some light on such a combination of factors and makes it amenable to a quantitative analysis. It has been found that a substance produced by one organ of the body unites with the connective tissue cells of another organ, and that if such a combination has taken place mechanical stimuli can cause an extraordinary, though temporary, tumor-like tissue proliferation. In this case the chemical activity of an organ of the body represents the internal condition and the mechanical irritation the external agency. Such experimental means and studies will allow us to eliminate many variable factors which complicate the development of natural tumors. Although these experimental products which have just been mentioned differ from tumors, mainly in not being permanent, they nevertheless will throw much light on the conditions on which exuberant growth and infiltration of surrounding tissues depend, and will thus help to clear up the mechanism of cancerous growth.

ANATOMIC CHANGES

To this physiologic point of view of considering phenomena of abnormal growth may be opposed the anatomic point of view which undertakes to explain functional changes, such as variations of growth-energy as represented by tumor growth, on the basis of histologic appearances of tumors.

Thus in many changes in the skin due to long-continued external irritation we find more or less a similar sequence of anatomical changes. These typical anatomic changes have been termed "precancerous conditions." Cancers which are caused by the action of light and ultraviolet rays, and also by Roentgen rays and arsenic, and those found in senile skin, are preceded by hyperemia, pigment formation in the epithelial and pigment deposit in cutis cells; increase in the proliferation of epithelial cells, sometimes combined with the formation of epithelial giant cells; hyperkeratinization, formation of warts, and at last cancer formation. In certain conditions (*e. g.*, xeroderma pigmentosum) the hypertrophic processes in certain parts of the skin may be accompanied by atrophic processes at other places. In the later stages certain parts of the connective tissue show definite changes; they become hyaline while other parts directly underneath the epidermis may show a rarefication. Many blood-vessels may be obliterated.

Now various writers attributed to these changes as such an etiologic significance in the development of cancer. Thus Unna ascribed to the overproduction of pigment some importance; a very improbable assumption, if we consider that on the whole colored races are less liable to cancer of the skin. The production of melanin in the skin depends in all probability on the activity of certain oxidative ferments, and it is conceivable that under stimulating conditions, among other changes, a correlated change in certain oxidative processes in the cells may take place. Others held hyperkeratinization, as such, responsible; again a very unlikely assumption. Hyperkeratinization being merely the expression of atypical growth phenomena which are taking place in the skin, cannot be considered as the cause of these growth processes. Others accused the obliteration of blood-vessels; this condition, it was argued, forced the epithelial cells to obtain their food-supply from connective tissue cells; which latter process was said to act in a similar manner as the penetration of a spermatozoon into the ovum, a somewhat fantastic comparison with hardly any foundation of fact. Ribbert believed in the etiologic importance of a subepithelial cell-infiltration. But this is not always present at the commencement of the cancerous growth. Others assume that the chronic connective tissue changes liberate the latent energy of the epidermis. It is, however, difficult to see why very dense connective tissue should, as such, be favorable to epithelial growth. In all probability it would prove to be very resistant to the expansion of the epithelium. In many cases of cancer of the skin, moreover, no such connective tissue changes are present. Unna, for instance, especially noticed their absence in certain cases of sailor's skin cancer. On the whole, it is therefore more probable that epithelial proliferation and connective tissue changes are coordinate and that the latter are not to be considered as primary processes. In a few cases it was noticed, first, it seems, by Roessle and Spude, and recently also by Janeway, that in the early stages of cancer the epithelium grows down in the direction of dilated blood-vessels and in some way or other the presence of such dilated blood-vessels was held responsible for the development of cancer, without, however, any convincing reason being given for the validity of such an explanation. In many cases, moreover, such a relation between dilated vessels and epithelial proliferation is absent. We must realize fully the great difficulty in explaining functional phenomena on the basis of certain histologic appearances, however, frequently the latter may be found. There are many variable factors present in such phenomena and the chances are so great that only indirect connections exist between a certain histologic picture and the functional condition it is called for to explain, that it is not safe to use it as the basis of a more or less elaborate hypothesis.

CONCLUSION

Through experiment alone we can eliminate the variable factors one after another, and slow as the experimental procedure may appear, it will ultimately prove to be the only safe guide in our work. I do not, however, underestimate the value of histologic investigations, which in many other directions have proved to be of inestimable value, and which are also necessary as an adjunct in the etiologic study of cancer, but in the latter only in a subsidiary way. Until further experimental investigations shall enable us to discriminate with greater accuracy between the various factors and their mode of action, one must be content to state that in many cases of cancer long continued external irritation is of the greatest etiologic significance; that long-continued stimulation of the epidermis may lead to the formation of cancer; that it is, however, at the present time not possible to state how much of this stimulation is exerted directly on the epithelial cells through the

external agency, and how much is an indirect effect caused by changes in the organism as a whole or in the underlying connective tissue. But even if these latter changes should prove to be of greater significance, and not to be merely coordinated changes, they must be assumed to stimulate by physicochemical processes the overlying epidermis. Until we know more of the more distant effects which long-continued external stimulation may exert on cells, and which may find expression only after a very protracted period of latency, we must beware of too detailed explanations. We can, however, be certain that as the result of long continued irritation the epithelium changes in its proliferative power and that such changes are transmitted to the following cell generations apparently indefinitely.

TREATMENT OF MALIGNANT GROWTH OF THE SKIN FROM A DERMATOLOGIC STANDPOINT*

WILLIAM ALLEN PUSEY
CHICAGO

In considering the treatment of malignant diseases of the skin from the dermatologist's standpoint, the topic assigned to me, I shall take up only cutaneous carcinoma. I shall use the term "epithelioma" as synonymous with primary carcinoma of the skin and shall make no distinction in principles of treatment between rodent ulcer and squamous epithelioma confined to the skin.

The successful treatment of carcinoma of the skin, as of other tissues, requires, in the present state of our knowledge, the complete local destruction of the growth. The future holds out possibilities for the relief of carcinoma by systemic treatment, but at present we have no systemic methods that have any definite effect on the course of carcinoma. None of the agents used empirically has proved of value, and the agents which have been assumed to have a rational foundation, as cancroin, the cancer serums, and trypsin, have all proved totally useless.

INTERNAL REMEDIES

The only one of the internal remedies that seems to be entitled to the slightest consideration for its claims even to inhibit the growth of carcinoma, is arsenic. Arsenic, administered in large doses, undoubtedly has a definite effect on the nutrition or growth of the skin, and equally certainly some cases of sarcoma of the skin have been cured by the persistent and usually heroic use of arsenic. Some very careful observers, as Sherwell, and Abraham Jacobi, believe it is of benefit in carcinoma, and I believe when we are taking stock of our remedies for carcinoma, arsenic is entitled to mention as having a possible effect on the course of the disease—an effect not radical, but inhibitory.

We then are compelled to face the fact that the only way we can treat carcinoma successfully is to destroy it locally; and the practical question is, How can this best be done?

Obviously there are many ways in which living diseased tissues can be destroyed, and there are a number of methods of destroying carcinomatous tissue which are available for therapeutic application.

EXCISION

The most popular method and the one of preference among surgeons is excision. Excision is the only method practicable in many carcinomas, as those of the internal structures of the body, and in such situations we must avail ourselves of the one resort we have. But there are broad objections in principle to excision in carcinoma. In a large sense it is the crudest method of treatment. It removes an entire part, in the hope of removing with it diseased tissues which form only a fraction of the whole. It takes no account of the ability of the tissues to assist in the defense against carcinoma. A clean excision, healing practically without inflammatory reaction, must remove every cell of carcinoma to be successful. If it fails in this, no reaction has been excited in the tissues that may destroy remnants of the disease, on the contrary, lymphatic spaces have been opened up, and other opportunities given for the more favorable growth of any part of the carcinoma left. So, if clean excision fail in absolute removal *en masse*, the procedure has shot its one and only bolt, and the disease remains.

These are not the objections of one opposed to operations in carcinoma; they are inherent difficulties in the principle of treatment of carcinoma by aseptic excision which if they could be avoided in all cases, would simplify the problem of successful treatment. Surgery recognizes these difficulties in constantly devising more radical and still more radical operations. It also recognizes the great danger of clean incisions which go into carcinomas, whether through the body of them, or through the peripheral offshoots. Thus Meller[1] in a statistical study of the result of surgical treatment in carcinoma of the head, neck, and face in Hochenegg's clinic in Vienna observes that local recurrence in and about the scar (after operation for cancer of the lip) is very much more frequent than glandular recurrence; which is another way of saying that the greatest difficulty in operative removal is to get all of the local growth. From the study of this series of cases he also calls attention to the often observed fact that operations which are not complete hasten the fatal termination of the disease by favoring extension along the opened channels and in the mutilated tissues. And he concludes: "May these figures be a warning to all those who face this disease without sufficient equipment; the knife of the unpracticed, untrained surgeon does more harm than good."

These facts are, of course, well known, and the statements from Meller are not quoted for themselves, but because of the corollary to them. The corollary is that the dangers that arise from clean excisions in and about carcinomas should be avoided when the complete destruction of the carcinomatous mass is possible without resorting to such procedure.

Again, W. S. Halstead, in writing on the operative treatment of carcinoma of the breast, emphasizes the danger of incisions into carcinoma, even for material for diagnostic examination, as follows:

> It was my practice at one time in making the exploration in doubtful cases to excise a portion of the breast tumor with the Paquelin cautery to prevent the wound inoculation which I feared might take place if the knife were used. The excision of a specimen for macroscopic or microscopic examination is never resorted to except just before operation. If the actual cautery for any reason is not used the wound is immediately cauterized with carbolic acid. All incomplete operations for

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Meller: Ztschr. f. Krebforsch., 1907, p. 64; reviewed editorially in THE JOURNAL A. M. A., Nov. 16, 1907, xlix, 1677.

cancer should, when feasible, be made with the Paquelin or actual cautery.[2]

These dangers from the use of the knife obtain with equal force in carcinoma of the skin, in which, especially on account of the necessity of sacrificing as little tissue as possible, there is often presented a difficult problem in getting beyond the borders of a growth. To put it in another way, if it is dangerous to cut into a carcinoma, why should excision without cauterization be the method of preference in epitheliomas in which one usually is compelled to save as much healthy tissue as possible, and often cannot be sure whether his knife has gone through carcinomatous tissue or not?

OTHER METHODS OF DESTRUCTION

This brings us to the question, Are there any available methods for destroying carcinomas other than excision? As I have already said, for internal carcinomas there are none; for carcinomas of the skin there are several which compel consideration by the open mind.

Let me say at the outset that I would exclude from consideration among non-excision methods all measures which are not vigorously destructive. Superficial caustics, like silver nitrate and phenol, are dangerous. They do not cause deep destruction of tissue themselves, nor do they produce a reaction sufficiently intense to destroy carcinomatous tissue, and, like all other irritants which fall short of destruction, they tend to make the growth more rapid. Equally ineffective for curative purposes are substances like pyoktanin, which promote epidermization and healing of ulcerated surfaces; they are especially dangerous in inexperienced hands, because the deceptive healing of the surfaces which they promote may be regarded as evidence of cure and valuable time thus be lost in making the radical attack.

The attempt to treat cutaneous carcinoma by high-frequency sparks or brush discharges, in the way this treatment is carried out in epithelioma, should also be included among the less vigorous and effective methods; it is not a method of treatment by actinic energy, like radiotherapy, and, when used with sufficient intensity to be effective, is a very awkward and painful way of doing a simple thing. In the same group of ineffective methods I would include simple currettage, no matter how vigorously done, and, except in cases most carefully selected by men of large experience, electrolysis and the new method of refrigeration, either with liquid air or with solid carbon dioxid.

Electrolysis, which is occasionally used for treating minute epitheliomas, does not destroy the tissue in sufficiently large masses to be a desirable method of treatment.

Refrigeration by liquid air or solid carbon dioxid, because of its ease of application and relative painlessness, is useful in very superficial rodent ulcers; but neither liquid air nor solid carbon dioxid is sufficiently destructive to rely on without great care, and they should only be used, if at all, in carefully selected cases; which is another way of saying that they should be used only by one who is thoroughly familiar with what he is doing.

CAUSTICS

There still remains a group of agents which, experience has shown, are vigorously destructive of carcinomas. These are the strong chemical caustics, like caustic potash, zinc chlorid, arsenous acid, and the strong minerals acids, the actual cautery and highly actinic forms of radiant energy in the form of Röntgen rays and radium rays.

The advantage which comes from the use of strong caustics, like potassium hydroxid, in treating carcinoma is that one is using an agent which not only promptly destroys the cancer tissue into which it penetrates, but at the same time blocks lymph-channels, and produces a violent inflammatory reaction that extends widely beyond the area actually destroyed—a reaction that offers a good prospect of destroying outlying diseased cells and that builds up a strong barrier of inflammatory connective tissue. A. R. Robinson[3] has for years insisted on the usefulness of caustics in cutaneous epithelioma; and it is but fair to quote his description of the reasons why they are advantageous in the treatment of these lesions.

HOW CAUSTICS ACT

For the purpose of simplicity and clearness of description Robinson assumes that an epithelioma may be divided into three zones: a central area, A, which represents the epithelioma visible to the naked eye; around A, a zone, B, in which carcinoma cells exist, but are not macroscopically evident; around this a third zone, C, in which perhaps some carcinoma cells exist, but beyond whose outer border it is highly unlikely that the disease has extended. Then describing the effect on an epithelioma of a caustic such as arsenous acid, he says:

> All of the tissue within A has been destroyed, deprived of its vitality, and also some of the tissue beyond A on account of the very intense inflammatory process there, the tissue being much more vulnerable than normal tissue on account of the injury received from the epithelial invasion; hence the completely necrosed tissue always appears to embrace a larger area than the epithelioma seemed to occupy when seen by the naked eye. Beyond this completely necrosed area the inflammatory process becomes less and less intense the less the tissue is invaded by the epithelial cells, but if the caustic has been applied for a long period the inflammation will be sufficiently intense to destroy all pathologic epithelia as far as B, and almost without exception as far as C; that is, the disease is removed as completely as if the incision by the knife had been made at C, although the normal tissue has been destroyed not even as far as B. Of course the favorable action extends in depth as well as outward in all directions from a center. The proof that the outlying epithelial cells are destroyed consists in the fact that the disease rarely reappears after such a condition of necrosis and inflammation has been produced.
>
> The destruction of these outlying cells depends, in my opinion, first, on the existence of the acute inflammatory process destroying the pathologic tissue quicker than it does normal tissue, according to a general law in pathology, and especially so in this instance, as the pathologic epithelia lie in the lymph-spaces and can, therefore, be vigorously acted upon by the inflammatory lymph, thus changing quickly and very greatly the previous condition under which they lived. . . .
>
> To repeat somewhat: from the proper action of this caustic, the same result as regards removal of the disease is obtained as if all the tissue within C had been removed by the knife, although normal tissue has been taken from a less area than that included within B; that is, that the caustic is in suitable cases a much more conservative agent than the knife, and therefore it should be employed in all cases in which it is an efficient one and deformity is to be avoided as much as possible, as in all face cases, for example, especially in cases of nose epithelioma. It must not be forgotten also that this method of treatment enables the surgeon to destroy the sometimes deep-lying cancerous tissue that cannot be excised for some reason or other.

2. "I was greatly pleased to note during a visit to Rochester, Minn., that Drs. William and Charles Mayo make extensive use of the actual cautery in operations on cancers incurable by the knife, and to have them indorse the view, so long maintained by me, that there is relative immunity from local metastasis with the employment of the cautery." W. S. Halsted: Tr. Am. Surg. Assn., 1907, xxv, 61.

3. Robinson: Med. Rec., New York, March 31, 1900, p. 355.

In conclusion he calls attention to the fact that it is not desirable for these wounds to remain aseptic, but that the usual moderate infection from the pus organisms of the skin aids in making the inflammatory process more intense, and of longer duration, and stimulates the growth of the granulations which are of benefit in lessening deformity.

That the theoretical advantages to which Robinson calls attention do actually exist, and are of practical benefit in the treatment of epitheliomas which are amenable to caustic treatment, has, I believe, been shown to those who are familiar with the results obtained with these methods of treatment. The scarring which results in these cases, when the treatment is carried out by experienced hands, is relatively very slight in proportion to the amount of destruction of tissue that may be required, and the results, I am convinced, will bear favorable comparison as regards permanency with the results of the treatment of similar lesions by clean excision. The impression as to the radical character of the results of caustics in carcinomas involving superficial structures, is not confined to dermatologists. Note, for example, the following quotation in regard to the treatment of carcinoma of the breast with caustics:

> I am indubitably convinced that the local and regionary recurrences after incomplete operation, which come, as a rule, with amazing rapidity when the knife has been used, are, to say the least, relatively late in making their appearance when chemical or actual cautery has been employed. I have several times had occasion to operate on cancers which had been vigorously and repeatedly treated with caustics, and to note the relatively admirable condition, the freedom from cancer permeation of the surrounding tissues and of the axilla; whereas, after incomplete operation with the knife the local manifestations of recurrence were almost invariably deplorable and the prognosis, of course, invariably hopeless.

This statement of the excellent character of the results of caustics in carcinoma tissue it not from a dermatologist, but from one of the foremost authorities on the operative treatment of carcinoma—Dr. William S. Halsted. The favorable effects of caustics on carcinoma, which he summarizes so admirably, apply with especial force in the treatment of localized carcinoma of the skin. I have had occasion, in a few cases, to observe the results from the use of caustics in the total removal of the breast, in one case, of both breasts, and I can confirm Dr. Halsted's statement as to their character. They fully bear out the claims made by Dr. Robinson, as to the radical effects of caustic treatment, when thoroughly applied in the treatment of carcinoma. I have also had occasion to see surprising radical results in extensive epitheliomas, which had failed of surgical cure, and were apparently beyond check. The man, like myself, who is called on to see the late cases of carcinoma in patients who have sought all sorts of methods of relief, regular and irregular, cannot but be impressed with the value of caustics, sometimes in the hands of irregular practitioners; and to feel the misfortune that surgery, as a rule, has not been able to keep an open mind in judging of treatment by caustics, with the result that their use has been left largely to irregular practitioners, most of whom are ignorant and who do much harm, but who, in spite of this, occasionally produce with caustics amazing results in cases which have been signal surgical failures.

CHOICE OF CAUSTICS

The choice of chemical caustics for the treatment of epitheliomas lies practically between arsenous acid, zinc chlorid, caustic potash and acid nitrate of mercury. Robinson prefers, as a rule, arsenous acid; Van Harlingen, caustic potash; Sherwell, acid nitrate of mercury. All of these are agents which totally destroy cancer tissue with which they come in contact, and all, except arsenous acid, produce immediate destruction of healthy as well as diseased tissue. Arsenous acid, in proportion of 50 to 75 per cent., with powdered acacia 50 to 25 per cent., mixed with water to form a paste, requires for the destruction of a mass of superficial carcinoma of the skin from six to twenty-four hours. It may be said to possess some selective action in the destruction of carcinomatous tissue. The others progressively destroy all tissues with which they come in contact and require for the destruction of an epithelioma an application of only a few minutes' duration—from five to twenty. The technic of the application of these agents, into which I cannot go fully here, is easily available in the detailed writings of Robinson, Sherwell, Van Harlingen, Gottheil and others. The successful treatment of epitheliomas with caustics requires knowledge of the methods, and one should familiarize himself with these methods before undertaking to use them. In the use of caustics, as in operative procedure, knowledge and judgment are needed. No one method is applicable to all cases and no one technic. In the use of a caustic there is required the exercise of judgment and the adaptation of means to ends, quite as definitely as they are demanded in treatment by excision.

THE RÖNTGEN RAY

No one who is not blind to facts can doubt, if he will take the trouble to investigate, that carcinomatous tissue in the skin can be destroyed with *x*-rays. On the basis of a large experience in primary and secondary carcinomas of the skin, I am willing to maintain that carcinoma tissue in the skin can be destroyed by exposure to *x*-rays as certainly as by any mechanical or chemical method; that the method, therefore, can be used with assurance, and that the results as regards permanency are fully as good as those obtained by any other methods. There are certain theoretical advantages which the use of the *x*-ray offers over other destructive methods.

First.—It is painless and avoids the ordeal of operation. This is an advantage not only of humane consideration, but of practical importance, because it enables one to treat early lesions in cases in which the patient will not at the time accept the gravity of the situation and submit to operation or any other method of gross destruction.

Second.—The method may be so used as to destroy carcinoma cells, but leave in large part the connective tissue stroma intact and in condition to repair itself.

Third.—Accordingly it leaves small scars.

Fourth.—It can be used in cases in which the surrounding healthy tissue cannot be sacrificed. This means that:

Fifth.—It is valuable in certain cases in which ordinary methods are objectionable, because they involve extensive operations and serious subsequent disfigurement, as, for example, about the eye and nose. This means further that:

Sixth.—It has a field of usefulness in some cases in which ordinary methods are impossible, because of the amount of destruction of tissues which complete removal would require; in other words, it may be used to produce a radical result in some inoperable cases and to improve and inhibit the course of other inoperable cases.

These theoretical advantages of the use of *x*-rays are a practically verbatim quotation of a statement of mine published seven years ago, and my subsequent experience confirms me in the belief that their accuracy has been established by practical results.

I have written so much on the use of *x*-rays in epithelioma that I do not feel that I should impose on your patience by an extensive consideration of this subject on this occasion. In brief, I may say that except in those cases in which I think the only proper treatment is excision and a radical surgical operation, to be considered later, treatment by *x*-rays is my method of preference in epithelioma. As a rule, but not always, the method is slower in results than the older methods, but this is its one disadvantage. As to the radical character of the results, they may court comparison with any other method of treatment. In a paper read before the Sixth International Dermatological Congress in September, 1907, I gave a detailed report of the results in 111 consecutive cases which had been treated three years or more before. In this list there were 72 per cent. of successful results; of the patients not incurable by other methods, practically 100 per cent. were successfully treated. Without entering into statistical considerations here, I believe I may say fairly that in an experience now numbering hundreds of cases of epithelioma treated with *x*-rays, I have not had occasion to regret that I had used *x*-rays; and I say this with, I trust, a fair appreciation of the results obtained in the treatment of epitheliomas by other methods. The disappointments at failure radically to relieve operative epitheliomas by treatment with *x*-rays have been very few. I have had a very much larger number of disappointments at failure greatly to benefit hopeless cases. Nevertheless, the most valuable use, perhaps, of *x*-rays in carcinomas of the skin is seen in the palliation and temporary relief of the cases which are hopeless of other benefit.

I trust I may be pardoned for basing my remarks on the use of Röntgen rays in carcinoma solely on my personal experience, on the ground that in a comparatively new field, like the use of Röntgen rays in carcinoma, one can speak with the most assurance from his own experience.

Excellent results in cutaneous carcinomas have been obtained by F. H. Williams, Abbe, Wickham, and others with radium. In a previous paper I have indicated my belief that there is no essential difference in the form of energy concerned in treating epitheliomas with radium and with Röntgen rays. I know of no results obtained with radium which have not been duplicated with Röntgen rays, and in my opinion there is little ground for choice between the two methods. The obstacles to the use of radium lie in the difficulty in obtaining it and the fact that it exists in such small quantities that it is impossible to obtain more than a minute fraction of the quantity of actinic energy which is furnished by the ordinary *x*-ray apparatus.

COMPARISON OF METHODS

In referring to the comparative advantages of different methods of treatment in cutaneous carcinoma, I would emphasize as strongly as possible the importance of a sharp line of distinction between the cases which are suitable for treatment with caustics or *x*-rays and those which should be treated by excision. I would make no distinction on their histologic structure—between squamous-cell epitheliomas, which are apt to be deeper, and the superficial lesions of the rodent ulcer type, the so-called basal-cell carcinomas of the skin. I do this fully understanding that there is often a marked difference in the clinical course of rodent ulcers and alveolar epitheliomas, but I am, nevertheless, fully convinced that the treatment of rodent ulcers should be carried out on exactly the same principles and as vigorously as that of other carcinomas of the skin; that they occasionally have metastases; and that if left untreated or treated badly, while they will likely pursue a slower course, from that very fact they often cause more disfigurement and more suffering than more rapidly growing carcinomas.

For the purpose of treatment, I divide epitheliomas into two classes: First, those in which rational treatment requires only the complete destruction of the growth *in loco;* second, those in which rational treatment requires removal of contiguous glands, or—having in mind in this connection the orbit—the deep removal of underlying tissue.

In the first group of cases—those in which treatment requires only the destruction of the growth in its primary location—I believe that as a rule the *x*-ray is the best method of treatment; that after that the use either of a caustic or of a mechanical method of procedure, like curettage, always to be followed by a strong caustic, is the second method of preference. This condition, the necessity for the removal of contiguous glands, eliminates from this method of treatment most lesions occurring on the mucocutaneous junctures. It requires that most epitheliomas occurring at the anus, and on the penis and scrotum, and perhaps most epitheliomas occurring on the vulva, should be immediately submitted to radical operations. Perhaps there are some cases of epithelioma about the external genitals which do not require a radical operation, but my experience is so small in all but late epitheliomas of the external genitals that I should want some one of wider experience than myself to decide before I would undertake the treatment of any epithelioma of these parts by its local destruction. This condition also demands a radical surgical operation for most epitheliomas of the lower lip—not of the skin surface of the upper lip—but it is indubitably true that there is a type of superficial epithelioma of the lip which the expert can recognize as such, and whose radical cure does not require the removal of the glands beneath the jaw. These lesions are very superficial epitheliomas, usually occurring in old people and perhaps lasting for years without deep involvement of the lip. They begin in most cases—I am not sure not in all—in patches of hypokeratosis or of leukoplakia of the lip. These, after continuing without manifestations of irritation for years, perhaps finally show an irritated base with some excoriation of the surface, and then there is slow progression along the surface of the lip. I have treated perhaps forty consecutive such patients, most of them referred by surgeons, without a single development of carcinoma in the lymphatic nodes of the neck.

But the selection of the treatment applicable to these cases requires the greatest caution, and their treatment should not be undertaken unless one fully understands what he is doing. Because of the danger of the abuse of any method of treatment of epithelioma of the lip which does not involve the removal of the glands beneath the jaw, I should be glad not to mention the practicability of the treatment of any epithelioma of the lower lip by methods of local destruction, were it not for the fact that there are some cases in which this less radical procedure is highly desirable or the only resort possible. There are other situations in which the decision of the question as to the removal of the contiguous glands requires the exercise of mature judgment; but it is in epitheliomas of the anus, of the external genitals, and of the lower lip that this question

is of most importance. In the treatment of epitheliomas about the eye the question of attacking the orbit surgically arises. In lesions beginning on the upper or lower lids, involvement of the orbital tissue is slow to occur and the *x*-ray offers the ideal method of treatment. When epithelioma palpably involves the orbital tissues, the radical cleaning out of the orbit is indicated. This danger is greatest with epitheliomas occurring near the inner canthus, and in such cases local destruction should be undertaken with the utmost caution. Lesions occurring on the temples and near the outer canthi do not nearly so frequently call for destruction of the eye by radical operation, and are often amenable to treatment with *x*-rays.

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THE SURGICAL TREATMENT OF CUTANEOUS MALIGNANT GROWTHS *

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BALTIMORE

Before any surgical treatment for a cutaneous growth is planned or carried out there must be an accurate diagnosis. I cannot go into the details of such diagnosis for the different lesions, but I wish to emphasize in the beginning of this discussion the importance of a definite diagnosis. In some instances the diagnosis can be made from the clinical appearance of the visible cutaneous lesion. Palpation of the dermal or epidermal tumor should always be combined with careful inspection, and in many cases the recognition of carcinoma is possible by palpation when inspection leaves a doubt in the surgeon's mind.

When the diagnosis is impossible or doubtful from the clinical history, combined with inspection and palpation, a surgeon who has the requisite special training can differentiate the various pathologic processes by making an incision and thus exposing to the naked eye the freshly cut lesion. The operation follows immediately. Such an exploratory incision should be disinfected either with pure phenol or the Paquelin cautery. When the surgeon has not this special training, a small piece can be excised at the exploratory incision for a frozen section, and the diagnosis can be made almost immediately by the pathologist connected with the surgical clinic. It is unfortunate when a piece is excised for diagnosis and some days elapse before the operation is instituted. In the benign, and perhaps in some of the less malignant, skin lesions there is no danger from such a course, but, as far as my investigations have gone, it is distinctly contraindicated in the more malignant lesions, both carcinoma and sarcoma. If circumstances are such that the surgeon is compelled to excise a piece for diagnosis and then wait a few days before carrying out the operation indicated by the pathologic report, he should attempt to cut out the area from the tumor proper, without carrying his incision into the border of uninvolved tissue, and, in addition, the raw surfaces should be immediately treated with pure phenol or the Paquelin cautery. It is my opinion, however, based on a large experience and confirmed by the expressions in the literature, that the diagnosis can and should be made immediately. It is the hope that it may be possible to train ourselves to such a degree that even the exploratory incision for gross inspection or frozen section may become less and less frequent.

This positive diagnosis is necessary, because for the different skin lesions the magnitude of the operation varies, even involving considerable mutilation. It is especially in those cases where the extensive operation would be mutilating that the positive and immediate diagnosis becomes more and more essential. When the more extensive operation would be no more mutilating than the restricted local operation, I should advise the extensive operation if there be any doubt.

The extent of the local operation, and whether it should be combined with the removal of neighboring lymphatics, or deeper tissues, muscle and bone, varies not only with the nature of the lesion, but with its site. In general, it may be stated that for sarcoma a local operation is sufficient, while in carcinoma of the squamous or spinal-cell type, the local operation should, in the majority of cases, be combined with the dissection of the neighboring lymphatic glands and surrounding tissues. But to-day, no such general statements are sufficient. Experience has taught us that the nature of the operation must vary not only with the different varieties of tumors, but with the same tumor in different localities and different tissues.

So much to emphasize the importance of a positive diagnosis.

CLASSIFICATION

In the Surgical Pathological Laboratory of the Johns Hopkins Hospital I have developed a scheme of classification which has been found of practical value for teaching purposes and for investigating the question of the proper operation for the different tumors in the same locality.

In this investigation I have borne in mind the question, what operation will give the patient the best assurance of a cure with the least mutilation, and when and where is extensive mutilation justifiable in an atempt to acomplish a permanent cure?

The facts of this paper are based on a study of the following cases which include only lesions of the skin:

Malignant pigmented moles	65 cases
Sarcoma of the derma	45 cases
Epithelial tumors of the skin and mucous membrane	812 cases

These figures demonstrate that the most common malignant lesion of the skin is of epidermal origin; sarcoma is relatively rare.

MALIGNANT PIGMENTED MOLES

The study of this malignant dermal tumor of congenital origin, and of its benign prototype, brings out better than the study of any other group of neoplasms a conception of what may be called the preventive measures for treatment for malignant tumors. I look on a preventive measure as the recognition of those benign tumors and conditions which have a tendency to later become malignant, and their removal in the benign state.

I was the first, or at least one of the first, to call attention to the importance of the removal of certain forms of benign congenital pigmented moles, some seven years ago.[1] The statements then made, which were

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* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* Because of the space required this article is abbreviated in THE JOURNAL, but it appears in full in the Transactions of the Section and in the author's reprints

1. Prog. Med., December, 1903, p. 149

based on a relatively small experience, have been confirmed by the greater experience of the seven succeeding years. I now have careful personal notes of 65 cases of malignant pigmented moles. These cases have been collected from various sources. In every instance the diagnosis has been confirmed by a pathologic examination. Up to the present time there is not a definitely cured case amongst them. Now, it is to be remembered that in every one of these cases there had been a tumor visible to its host for many years. Such tumors can be removed under cocaine or local anesthesia without difficulty. It seems, therefore, worth while, to educate the public, to call the attention of the physician to such apparently innocent tumors, and to educate the physician to recognize when their removal should be urged. Of course, no harm can be done by the removal of any such tumor, although it may be practically impossible to remove all the pigmented areas which are to be found on some individuals.

In my experience with 65 malignant cases, in only three or four were the patients covered with such pigmented areas. In the majority, the individual had but one, or at most but a few, congenital pigmented moles. The mole which had become malignant was never a flat pigmented area, not elevated above the epidermis, but was distinctly a projecting tumor. It is my opinion that all such moles should be removed, especially when they are in localities exposed to trauma. Pigmented spots are entirely different from the definite, projecting, sessile or pedunculated, warty or smooth, pigmented mole. This information should be given publicity. During the same period in which I have collected 65 cases of malignant pigmented moles, I have accumulated in the laboratory 76 benign, the majority of which have been removed by myself, because of my attitude toward such apparently innocent tumors. As to the present result in all these cases, I have a record with but few exceptions, and there have been no local recurrences and no deaths from internal metastases. The largest number of moles removed from any one individual was five. In every case the mole has been removed with the knife, and not an individual finds any fault with the scar.

I emphasize this point, because there are other methods employed to remove different types of benign skin lesions—the *x*-rays, radium, carbon-dioxid snow, liquid air, the Paquelin cautery, the electric needle, and different caustic pastes. As I have had no experience with these methods of treatment, I am not justified in condemning them, but I am inclined to the view that the more dermatologists familiarize themselves with the simplicity of removing small skin tumors with the knife, under local anesthesia or nitrous oxid gas, the more they will employ this method.

For certain tumors and in certain situations the above methods have a distinct place, but for the benign mole I would urge complete excision with the knife. With the other methods there is not the same certainty that all these congenital residues of cells are destroyed, and when the method is employed incompletely it may act as a stimulant. In a number of my personally studied 65 cases of malignant congenital pigmented moles, one of these methods had been first employed. Of course, it is impossible to say that this tinkering with the mole was the factor which produced its malignant growth. Nevertheless the observation is suggestive.

The excision with the knife may be just as dangerous if the tumor is not given a sufficient berth. I am confident that it is better to leave a mole alone than to excise it incompletely. When the mole is situated on the face there is a temptation in the hands of an inexperienced surgeon to limit the area excised, but as a matter of fact the scar is no more conspicuous when sufficient margin is given than otherwise.

The public and physicians should be impressed with the importance of the immediate and complete removal of any congenital mole which suddenly shows any growth, superficial ulceration, or scab formation. The sudden appearance in the skin of a tumor resembling a congenital pigmented mole should be looked on as an indication for its immediate removal.

I trust that the subject of the relation of benign or innocent tumors to later malignant transformation will be more often considered in the dermatologic and other sections of the American Medical Association. There is great need for publicity. It is true that the relative number of individuals to be saved is small, but certainly large enough to justify the time and trouble.

The first problem in regard to our attitude towards the apparently benign or innocent mole, I think should be looked on as settled—the tumor should be removed.

The second problem is by no means settled; that is, what should be the extent of the local operation, and should the neighboring lymphatics be included in the dissection when the patient comes with a mole which shows, clinically, definite signs of malignant growth?

In my 65 cases and, as far as I can ascertain, in the literature, surgeons have confined themselves to the local operation when the neighboring lymphatics were not visibly involved. Many of the patients, before there is any evidence of general metastasis, return with enlargement of the neighboring lymphatics, and now the more complete operation is performed. In many cases, if glandular enlargement is evident, the complete local and glandular operation has been carried out in the first instance. But there have been no permanent cures. In view of this evidence it seems to me I am justified in urging that in the future surgeons perform in every instance, whether there be visible glandular enlargement or not, a larger local operation combined with the complete dissection *en bloc* of the neighboring lymphatics, and such an operation should be planned along lines similar to Halsted's complete dissection for carcinoma of the breast. That is, the tumor should be removed with a zone of uninvolved skin and a wider area of subcutaneous fat, and with this should be included at least the fascia, and, in some cases, the muscle itself, then the neighboring lymphatic glands and surounding tissue. It is my opinion that we are distinctly justified in the future in attempting such an extensive dissection, although at the present time we have no evidence that the results will be any better.

But, as I study critically the 65 cases of which I have records and the available literature, I am impressed with the conclusion that the surgery of moles in their malignant state has been incomplete. There is therefore room for improvement in two directions: The education of the public and the profession in such a way that we may get the mole either in its benign state or very quickly after the first signs of local growth, and, second, in the later malignant state we must give the tumor a wider berth and combine the dissection with the removal of the neighboring fascia and lymphatic glands.

SARCOMA OF THE DERMA

In this group, in which there are 45 cases, there is generally a history of a congenital nevus, an acquired or

congenital fibroma, or the tumor has originated in scar tissue. The type of the tumor, when there has been a history of a nevus, is one that would naturally be expected—angiosarcoma. With a few exceptions the malignant connective-tissue tumor which has its origin in a scar or fibroma is of the type of the fibro-spindle-cell tumor. Among 14 cases of the former type (angiosarcoma) I have observed but one cure, and it is important to note that in this case a more extensive local and glandular operation was performed than in any other. Among 26 tumors of the latter type (fibro-spindle-cell sarcoma) 20 patients have been permanently cured by a local operation only.

Angiosarcoma.—Among 14 cases in which the gross and cellular pathology of the tumor has been practically identical, in 6 cases the malignant neoplasm has arisen in a congenital vascular nevus; in 8 there was no such history.

During the same period I have observed 109 cases of benign hemangiomas. The tendency, therefore, for the congenital nevus to become malignant is distinctly less than in the congenital pigmented mole.

All of the 109 cases of benign hemangioma have not been confined to the skin; for example, there are 7 situated within muscle—the so-called intermuscular angioma. Here the differential diagnosis is not a problem of dermatology.

Granulation-Tissue Tumors.—Here the differential diagnosis is more difficult. I have records of six cases. The age of the patients varied from 9 to 25 years, the duration of the tumor from two weeks to three months. In every instance there was the history of an injury, and the little tumor composed of red, vascular granulation tissue has grown from the scar. On account of the situation of these tumors a correct diagnosis is important, because if they be looked on as sarcoma a complete local operation, in some instances, would result in unnecessary mutilation. In two instances the tumor was situated at the site of the toe-nail; in one of these cases an unnecessary amputation was done. In three instances the tumor occupied the palm of the hand, once the finger and once the skin of the axilla. In these cases, if the surgeon is not able to make a differential diagnosis clinically, a trained pathologist should do so from the frozen section. When complete excision would cause mutilation these areas should be treated with the Paquelin cautery. The difficulties of differentiating sarcoma from granulation tissue is an old problem in the history of pathology, but it can be done and often saves the patient disfigurement.

Hemangioma of Skin.—Among my 87 cases of hemangioma the majority have been dermal tumors, and most of these of congenital origin, although in many cases the tumor was first observed later in life. My figures by no means give an idea of the relative frequency of this tumor, but represent only the type which, on account of local growth, has caused its host to seek surgical aid. During the last twelve years there have been sent to me for examination, from various sources, ten cases with the diagnosis of sarcoma. In all of these cases the dermal tumor in its growth had caused the destruction of the epidermal covering and given rise to a very vascular granulation-tissue mass. When I compare these cases clinically with true sarcoma I find a distinct difference: in sarcoma the compressibility of the tumor beneath and around the granulation area is lost, while in the benign tumor the characteristic feature of angioma—compressibility—is present. The differential diagnosis from a frozen section should not be difficult: in the angioma the blood-containing vessels are always present and the cellular tissue between these vessels resembles ordinary cellular granulation tissue, while in sarcoma no such picture is observed. The differential diagnosis is important, because the complete excision of the benign lesion would frequently be mutilating, and a cure can be accomplished by partial excision in conjunction with the Paquelin cautery, liquid air or carbon-dioxid snow. In view of the comparative rarity of sarcoma and the frequency of the hemangioma simulating sarcoma one should look on these lesions as benign until they are proved, by microscopic examination, to be malignant.

Sarcoma of the Skin with a History of a Congenital Nevus.—I have six cases in one of which the patient was cured. They are as follows:

In all of these cases the sarcoma was of the perithelial type. The cells were small and round, very much like those of lymphosarcoma. This tumor, wherever I have encountered it, has shown a very high grade of malignancy, and up to the present time I know of no permanent cures.

The two points which I wish to emphasize in regard to congenital tumors of the skin are well brought out in the study of this small group of cases. Any growth in a congenital dermal tumor should be considered as a symptom of an acute disease. A diagnosis should be made at once; if the histology shows that the growth is still of an innocent character a restricted local operation will be sufficient. As has been pointed out, the congenital angioma may show growth of a benign character, and the nature of the local operation will vary with the position of the tumor; if complete local operation would cause mutilation one is justified in using the Paquelin cautery or carbon-dioxid snow for these cases. In other situations I should recommend excision. If the histology shows the picture of sarcoma the local operation should be very extensive, and I am quite confident, if this is done, the number of cures will be increased. When the patient is seen later in the malignant stage of the disease it seems to me it is justifiable to make an attempt at a most radical dissection *en bloc*. The chances of a cure, however, are relatively small for the cellular type of sarcoma.

Angiosarcoma of the Skin with No History of a Nevus.—These 8 cases differ from the previous group only in the absence of a history of a congenital tumor. The age of onset has varied from 4 to 54 years of age; the duration of the tumor from six weeks to twenty years. In five of the cases the duration of the tumor has been over one year. In none of these cases has a cure been accomplished. All of them have been of the most malignant form of sarcoma—small-round-cell, and most of them of the perithelial type. All of the tumors first appeared as subepidermal nodules; in a few ulceration with fungus formation was present at the time of the operation. Three were tumors of the scalp, clinically resembling the ordinary wen, which is an epithelial cyst; two of these were blood-cysts; the third blood-cyst was situated between the mucous membrane and skin of the cheek. All of the important problems of the surgical treatment of tumors are represented in the study of this group. In the first place, the sudden appearance of an epidermal nodule, even if it has all the signs of a benign tumor, should be looked on as an acute disease. In view of the fact that in this earlier period a differentiation between the benign and malignant cannot be made, except at the exploratory incision, the surgeon should be prepared to make the differential diagnosis.

Of the three tumors of the scalp resembling wens, in every one such a clinical diagnosis was made, and the incomplete excision sufficient for the wen was performed for the more malignant tumor. In all there was immediate local recurrence. Subepidermal blood-cysts are not always malignant; I have observed a benign blood-cyst in the cheek and one on the tongue. Both were recognized at the exploratory incision and a cure accomplished without mutilation.

Sarcoma of the Skin in Scar Tissue.—I have personally studied 19 cases, in which 16 patients have remained well. In all of the cured patients the tumor was of the fibro-spindle-cell type. Tumors of this character must be looked on as on the border-line between benign and malignant. One pathologist may call them sarcoma, another a cellular fibroma. The important surgical fact is that these tumors are curable by a local operation, and such an operation need not be extensive.

When such a tumor is observed in a scar it is essential to differentiate, in the gross or in the frozen section, this fibro-spindle-cell tumor from the more malignant round- and spindle-cell sarcoma, and the latter must be differentiated from the carcinoma. I wish to emphasize this, because very frequently the operation which should be performed for the carcinoma, and in some instances for the spindle- and round-cell sarcoma, would be unnecessarily extensive and mutilating for the fibro-spindle-cell tumor. The differentiation can be often made by an experienced surgeon clinically; if this is not possible an exploratory incision or frozen section should settle the question at once.

The relation of scar tissue to various pathologic processes is an important one. The most common, non-ulcerating neoplasm is the keloid. I have studied 42 cases. It is important to differentiate the keloid from the fibro-spindle-cell sarcoma in scar tissue. There are cases in which there is little doubt as to the keloid on one hand and the sarcoma on the other. The keloid confines itself to the scar proper, reaches a certain size and ceases to grow; it rarely ulcerates. The sarcoma quickly infiltrates beyond the area of the scar, grows more deeply, and not infrequently ulcerates. The histologic differentiation from a frozen section in some cases is impossible, in my opinion. If there is any doubt in the diagnosis between a keloid and a sarcoma I should advise that the treatment be planned as for a sarcoma Among the fibro-spindle-cell sarcomas in scar tissue I note a few cases in which cures have been accomplished after one or more recurrences, and the question naturally arises, Are these tumors sarcomas or keloids? Perhaps later Dr. Mallory, who is making such important and interesting investigations into the cellular and intracellular structures of tumors, may throw light on the differential diagnosis. But at the present time there are many cases in the group of fibro-spindle-cell tumors in which the surgeon should not depend on the frozen section, but should be influenced more by the clinical picture and gross pathology, and when there is any doubt it is best for the patient to treat the lesion as sarcoma, because the necessary local operation is not of sufficient extent to cause mutilation.

I wish to emphasize here again that for this border-line fibro-spindle-cell tumor the local operation need not be very extensive. However, if the lesion is situated in a position in which a more extensive local operation will cause no greater mutilation I would advise its performance.

The granulation-tissue tumor I have already discussed under angioma and angiosarcoma. The more malignant spindle- and round-cell sarcoma in scar tissue is relatively rare. The three cases which I have studied died of local recurrence and internal metastasis. All of them were, in the modern sense, neglected cases, because the growth in the scar tissue had not been subjected to treatment until a period of from three months to two years had elapsed, and in all of the cases the first operation had been incomplete; two were later subjected to second operations of a more extensive character without avail. The investigation of the cured cases in this group shows in a few instances that the operation has been unnecessarily extensive. For example, in one in which the lesion was situated on the heel, amputation of the foot was performed.

The epithelial tumor which may form in the epidermis of scar tissue will be discussed later.

The study of scar tissue is therefore a very interesting and important problem, both to the dermatologist and to the surgeon. A wound is an irritant and the injured tissues throw out or give rise to a new tissue which is at first very cellular, and is called granulation tissue, and later changes into scar tissue. If there is a defect in the skin or mucous membrane we have, in addition, an ulcer and the process of epidermization of such an ulcer. There is unusual activity, therefore, on the part of both connective tissue and epithelium.

During the early healing of a wound, if the inflammatory reaction is excessive, we have what is called a granulation-tissue tumor. In later periods an excessive scar tissue gives rise to keloids. If the wound is associated with a break in the skin we may have, during the epidermization of the ulcer, atypical down-growths of epithelium, or over-growths giving rise to a papillomatous surface at the ulcer edge. The malignant epithelial tumor—the carcinoma—is observed only after an ulcer has been present many years, but the sarcoma, apparently, may form at a much earlier period.

It is important, therefore, that every attempt be made to encourage the proper and prompt healing of a wound, and nothing should be done unnecessarily to increase the inflammatory activity of the cells.

This is not the place to discuss the relation of wounds and other lesions of the skin which keep up a form of chronic irritation, but if surgery of to-day is not to be the forlorn hope of an operation at the late stage of a disease, it must demand that it be given the opportunity, not only to apply its art in the early stage of neoplastic growth, but even at an earlier period, which might be called the precancerous period. At this period surgery advises the removal of all skin tumors and proper healing of all skin lesions.

Sarcoma and Fibroma of the Derma.—One is confronted with the same difficulty of differential diagnosis between fibroma and sarcoma as between the fibro-spindle-cell sarcoma of scar tissue and keloid.

I have classed 9 cases as sarcoma in tumors which have been present a number of years and which might be called originally benign fibroma. Four patients have remained perfectly cured since the complete local excision of the dermal growth. In every one of these cases the histology of the tumor exhibits the picture of fibro-spindle-cell new growth. In the three patients who were not cured the histology of the tumor was entirely different; they were round-cell sarcomas, and the round or spindle cells were found in alveoli, the mesh-work of which appeared to be the remains of the fibrous tissue of the old fibroma.

It is very important to call attention to the fact that in all of these cases there was a history of an apparently

innocent dermal tumor which had been present from one to eighteen years. The actual duration of the tumors was as follows: one (2 cases), three, four, eight, ten and eighteen years. There was no difference in the local growth in these two types of tumor. In every case there was a quiescent period, then a local growth with superficial ulceration, in many cases associated with trauma. The cause of death in one of the cases was internal metastasis. In this instance the local growth of the tumor was insignificant; in the other two cases which succumbed to the disease there was, first, local recurrence after an incomplete operation, then again local recurrence and internal metastasis after an attempt at complete operation.

As compared with keloids the true fibroma of the skin is a less frequent lesion. I have recorded as true fibroma of the skin 28 cases; many were small nodules with adherent epidermis of from 5 mm. to 2 cm. in diameter, the majority about 8 mm. In many of these there was a history of a trauma, or the hard nodule was secondary to a pimple. That is, in almost every case there was an etiologic factor. So perhaps these tumors should be really classed as keloids. Among the 9 cases classed as sarcoma 3 in their onset were small subepidermal nodules, 4 pedunculated tumors.

It seems to me that this evidence is sufficient to justify the immediate removal of the small subepidermal or pedunculated fibroma during its innocent stage. This should be done by a local operation. If the patient seeks advice after such a tumor has begun to grow the extent of the local excision should be relatively greater. I have already called attention to the fact that in two of the fatal cases of sarcoma the first operation at an apparently fairly early period was followed by local recurrence, due probably to a restricted local operation.

Fibromyxoma of the Derma.—Von Recklinghausen's disease is not very frequent, and the tendency of one or more of the dermal tumors to become malignant is unusual. I have one such a case. It is quite impossible in many of these cases to excise all of the tumors, but if the tumors are few in number, or if one begins to grow, I would urge the immediate removal by a local operation.

I have never observed a fibromyxoma or a pure myxoma occurring as a single tumor to be situated in the derma, nor have I observed a myxosarcoma of the skin.

Connective-Tissue Cysts.—Among 30 cases of this type in only 2, one of the cheek and one of the tongue, were the cysts of dermal origin. Both were blood-cysts, and I have already discussed their differential diagnosis from sarcomatous cysts.

Lymphangioma of the Derma.—These are relatively infrequent lesions. All the cases which I have studied were benign. The diffuse form seen in the lip and tongue (macroglossia and macrocheilia) is not difficult to recognize. I have observed a small subepidermal tumor of the tongue of this type, and here the proper differential diagnosis from early epithelioma saved the patient from a mutilating operation. Another case is very rare: the tumor, 2 cm. in diameter situated in the skin of the thigh, had been present fifteen years in a male aged 47; it was encapsulated and showed a calcification and ossification. In a third case there was a diffuse growth in the groin which, on account of the accompanying papillary overgrowth of the epidermis, might have been mistaken for carcinoma. Gilchrist, who saw this patient first, has reported the lesion as lymphangioma circumscriptum.

Among the rarest benign tumors of the skin I have seen one case of xanthoma.

EPITHELIAL TUMORS OF THE SKIN AND MUCOUS MEMBRANE

Whether Krompecher's[3] classification be accepted or not, I am firmly convinced that a classification along the lines established by him is of practical importance.

There is a lesion of the skin which may appear as a wart, a subepidermal nodule, an ulcer or a fungus, and, microscopically, differs from the squamous-cell epithelioma. These tumors practically never give metastases and can be and are permanently cured by a somewhat restricted local operation. The opposite is true of the so-called squamous-cell epithelioma, in which the cells show hornification and pearly-body formation.

As with the benign and malignant connective-tissue tumors of the skin and the benign and malignant pigmented moles just discussed, so with the epithelial tumors, the extent and plan of the surgical operation should be controlled by the character of the tumor. As has been stated before in this paper, the same tumor when situated in different localities sometimes can be treated along different lines. For example, a squamous-cell epithelioma of the lip should always be removed locally, and this local operation should be combined with the complete dissection of the glands of the neck. But for the same tumor situated on the scalp the glandular operation is apparently unnecessary.

In 1904 I contributed my experience[4] with epithelial tumors as based on 468 cases, and adopted, to a certain extent, the classification of Krompecher. With an increased experience—684 cases—I am still favorable to Krompecher's views.

In the breast, no matter what the variety of the carcinoma may be, there should be no restriction of the complete dissection, but experience has taught us that in the skin and mucous membrane the well-known different types of epithelial tumors, with their differences in local growth and tendency to local infiltration and metastasis, allow us to vary the operation according to the site and character of the tumor. This is important from the standpoint of the patient, because if the principles applied to the breast were found to be necessary for cancer of the skin and mucous membrane, many patients, in order to be cured, would be subjected to mutilation, which experience up to date has demonstrated to be unnecessary. It is fortunate for the patient with cancer of the breast that the most extensive operation is little if at all more mutilating than the restricted operation. In cancer of the breast there is the same variability in the character of the tumor, and, while for some tumors the probability of a cure is 80 per cent., in others only 20 per cent., experience has demonstrated that a restricted operation in the most favorable form of cancer of the breast will reduce its probability of a cure to that of the most malignant form of cancer subjected to the most complete operation. It is this evidence that prohibits any restriction of the operation for cancer of the breast.

In cancer of the skin and mucous membrane we are accumulating experience which forces us to change the plan of the operative technic. In some cases the operation must be considerably extended. For example, in carcinoma spinocellulare (squamous-cell cancer) of the extremities, which rarely occurs except in wounds, ulcers

3. Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1900, xxviii; Der Basalzellenkrebs, Gustav Fischer, Jena., 1903.
4. Progr. Med., December, 1904, p. 134

or warts, it has been the rule in the majority of surgical clinics to confine the dissection to a local removal only. But to-day the majority of authors who have investigated the ultimate results emphatically conclude that the local operation should be combined with glandular dissection. In cancer of the tongue, it is my opinion that to-day the glandular operation is unnecessarily extensive, while the dissection of the floor of the mouth is too restricted.

Table 1 illustrates the relative frequency of epithelioma of skin and mucous membrane in the different localizations. In the first column appear the figures of carcinoma spinocellulare (squamous-cell epithelioma). In the second column are recorded the cases of carcinoma cubocellulare, which is composed of transitional cells; this variety is relatively unimportant, as the malignancy of this tumor is practically identical with that of the spinal-cell tumor, and the treatment should be the same. In the third column appears the carcinoma basocellulare; in the fourth, the malignant warts, irrespective of their cellular type, and in the fifth column, the benign warts. In the sixth column the number of inoperable cases, or those in which there was no pathologic examination, is noted.

TABLE 1.—EPITHELIAL TUMORS ACCORDING TO SITE AND PATHOLOGIC VARIETY

	Pathologic Variety						
Site.	Spino-Cellulare.	Cubo-Cellulare.	Baso-	Malignant Pigmented.	Benign Wart.	No Note.	Total
Lower lip	100	2	4	12	1	42	161
Upper lip	4	..	9	2	..	6	21
Face, cheek	9	3	24	5	5	28	74
Chin	..	..	2	..	..	2	4
Eyelid	1	1	16	..	..	13	31
Ear	6	1	4	1	2	3	17
Nose	12	..	24	5	4	9	54
Scalp, forehead	3	3	9	..	5	11	31
Mucous membrane of mouth, gum, hard palate	23	3	2	3	2	16	49
Tonsil, pharynx	3	2	1	..	..	7	13
Tongue	37	..	7	4	6	24	78
Skin of neck	1	..	5	1	1	2	10
Branchial cleft	3	9	4	..	..	7	23
Upper extremities	16	..	4	7	3	4	34
Lower extremities	13	3	1	2	10	6	35
Penis	13	..	4	1	7	12	37
Skin of body	2	..	5	1	3	1	12
Total	246	27	125	44	49	193	684

For the basal-cell tumor and the benign wart a local operation is sufficient. There have been many reported cures of basal-cell ulcers and fungi after treatment with the *x*-ray, radium, caustics and carbon-dioxid snow. I have had no personal experience with these methods. I have operated on a number of cases in which these methods of treatment had failed in the hands of competent dermatologists and roentgenologists. I have never observed a recurrence after proper excision in operable cases. If the small rodent ulcer (basal-cell tumor) is situated in a position where the local excision would produce more or less mutilation, for example, the eyelid, the ala of the nose or the lobe of the ear, my experience teaches me that there is no danger in attempting a cure by the methods just enumerated, provided the patient is carefuly watched. The chances of a permanent cure by local excision after a failure from any of these methods are not decreased. When the rodent ulcer has reached a huge size, practically prohibiting its removal with the knife, the other methods should be attempted, and now and then cures have been reported. I wish to emphasize the fact that experience demonstrates that an incomplete excision with the knife is more dangerous than a failure from the other methods, and if on account of the position of the epithelioma the surgeon feels that it would be less mutilating to give the lesion a somewhat narrow margin the knife should be supplemented by the cautery.

In my own experience, when these tumors have come to me in their early stage, I have no difficulty whatever in accomplishing a cure without mutilation, no matter what their situation, by excision with the knife, and I have followed the ultimate results in my cases most carefully.

For the malignant wart a local operation is sufficient, but when the original wart has practically been destroyed and its position is occupied by an ulcer or fungus it must be treated according to the character of the cells of which it is composed. The great majority of warts are spinal-cell tumors. The basal-cell tumor rarely has its onset in a papillary wart; it appears as a subepidermal nodule, at first covered with brownish epidermis, and then, as it grows, with a scab; beneath the scab an ulcer forms which may remain an ulcer no matter how extensive, or may produce a fungus no matter how small the ulcer. We never observe fungus growth in an ulcer larger than a silver dollar.

STUDY OF EPITHELIOMA ACCORDING TO SITE

Epithelioma of the Lip.—Carcinoma of the lip is the most frequent of the malignant lesions of the skin and mucous membrane.

The public must be educated to the life-saving importance of immediately consulting the physician for any ulcer, induration, wart or scab at the mucocutaneous border of the lower lip. The surgeon, with the rarest exception, must never vary from the rule to remove the glands of the neck as well as the primary tumor of the lower lip. The experience in the study of 161 cases, of which I have notes, demonstrates the appalling neglect on the part of the patient and the profession of lesions of the mucocutaneous border of the lower lip. On the whole, surgery has been much less neglectful in restricting its operation. A lesion at the mucocutaneous border of the lower lip in the majority of instances is a carcinoma spinocellulare. I have observed but one benign wart, twelve malignant warts and four basal-cell carcinomas. In these 17 cases a local operation would have been sufficient; all have been cured.

Among 32 cases of carcinoma spinocellulare of the lower lip in which, for some reason, the tumor only was removed, I can find only two definite cures. In a few cases the patients were apparently well six years and then returned with carcinomatous glands in the neck. When these results are compared with those in which both the local and glandular operations were performed at the same sitting there is a tremendous difference. If we take the cases in which six years have elapsed we find at least 50 per cent. of the patients well, as compared with less than 10 per cent. when the glandular operation was not done. What the results will be when patients seek surgical aid earlier I am not prepared to say, but I think it would be a mistake, with the evidence in hand to-day, not to combine the glandular operation with the local, even when patients present themselves in the early weeks of the lesion. In one of my own patients, who has been cured, the epithelioma was so small that the section can be viewed in its entire extent under the low power of the microscope. Yet this patient had metastatic glands. When the epithelioma of the lip has involved bone I have not a record of an accomplished cure, even after the most extensive dissection.

Upper Lip.—With the exception of four cases the lesion was situated on the skin and was either a basal-

cell epithelioma or a malignant wart. Local excision accomplished a cure. In the spinal-cell tumor the same operation should be performed as when the tumor is situated on the lower lip. The differential diagnosis, therefore, is important.

Face and Cheek.—The majority of lesions here are of the basal-cell type, but the tumor must be differentiated from the less frequent spinal-cell carcinoma, because in the latter, if a larger local operation combined with the glandular dissection is not performed, there will be no hope of a permanent cure.

On the chin, eyelid, ear and nose the problem is the same as on the face and cheek; here also the less malignant basal-cell tumor is more frequent. But if the tumor is of the spinal-cell type the local operation must be more extensive, and, my experience teaches me, also combined with glandular dissection.

Scalp and Forehead.—The local operation is apparently sufficient in early cases for all types of tumor. In the spinal-cell tumor one should also remove the pericranium, and, if this is apparently involved, some bone.

The lesions of the *skin of the neck, body, upper and lower extremities* may be considered together. The problems are apparently identical. As to why carcinoma spinocellulare is so frequently observed at the mucocutaneous border of the lower lip, and in the tongue, we seem to have no definite explanation. It is difficult to bring together cause and effect. In carcinoma of the gum the cause stands out prominently. The frequency of basal-cell epithelioma on the face, cheek, chin, eyelid, ear and nose may be explained by the fact that these basal-cell tumors are of congenital origin, or that they are acquired later in life on account of the exposure of these parts. In the skin of the body and extremities basal-cell tumors are less frequent, but we rarely see malignant epithelial tumors of the areas just mentioned without the history of a wart, of a wound or ulcer, or of some chronic inflammation of the skin, eczema, psoriasis, *x*-ray burn, etc. Here carcinoma never begins with the same spontaneity as apparently happens in the lower lip and tongue. There is therefore a distinct precancerous lesion which can and should be eradicated in that stage. When the fully developed tumor presents itself surgeons should not be content with the restricted operation of the past. For carcinoma spinocellulare in its fully developed ulcerous or fungous state the operation should be along the lines employed in the breast; a wide area of skin, a broader area of subcutaneous fat, fascia always in some cases muscle, and always the neighboring lymphatics. Infiltration of bone may be encountered, indicating amputation.

The surgical treatment of carcinoma and sarcoma of the extremities emphasizes the deplorable fact that surgeons have had a wrong notion of the local growth of these two neoplasms; for sarcoma amputation has been the rule, while for carcinoma a less radical operation has been performed. As a matter of fact the reverse should be the rule. But this is not a question for the dermatologist.

904 North Charles Street.

Principles of Treatment of Gonorrhea.—The fruitful principles on which we base our urethral therapeutics in gonorrhea are: (1) precise diagnosis of the nature of the lesions; (2) knowledge of their local position; (3) direct interference in the case of superficial lesions; (4) mechanical action to reach even deep lesions; (5) mechanical transport of medicinal particles.—L. Wickham, in the *Practitioner.*

PATHOLOGY OF MALIGNANT DISEASES OF NON-EPITHELIAL FORMATION *

F. B. MALLORY, M.D.
BOSTON

There are some fourteen different types of simple tumors. Each is due to the proliferation of one variety of cell. The epithelial tumors form the largest group of the simple tumors and their pathology has already been presented to you. The remaining tumors are often called the connective tissue tumors because many of them are of mesenchymal origin. The broader and better term to designate them when placed in contrast with the epithelial tumors is the non-epithelial tumors. It remains for me to present to you as dermatologists certain points of interest concerning the pathology of this large variety of tumors, some of which you see frequently, others rarely or not at all.

CLASSIFICATION AND TYPE OF CELL

A word first in regard to the classification of tumors. Under every recognized variety of tumor should be grouped both the slowly and the rapidly growing tumors built up by the multiplication of the same type-cell. In no other way is it possible fully to understand each variety of tumor and find out its characteristics. The type-cell is the one important element in every tumor. From it the tumor should be named; not from some peculiarity of minor importance, such as method of growth, arrangement of cells, or form of retrograde change. I shall speak briefly of some of the type-cells and of the tumors built up from them, and shall illustrate my remarks with pictures.

The fibroblast, the ordinary connective tissue cell, is in general a flat cell with a flat, oval nucleus. It is characterized by the production of two kinds of fibrils, fibroglia and collagen fibrils, which may be stained differentially and which distinguish it from all other cells The fibroglia fibrils are in intimate contact with the cytoplasm; the collagen fibrils form a true intercellular substance.

The slowly growing tumors arising from fibroblasts are called fibromata: the rapidly growing ones, fibrosarcomata. These terms represent extremes in rate of growth: all gradations between them exist. No matter how rapidly these tumors grow the cells tend to differentiate as do the normal fibroblasts.

The tumors known as keloids are formed by the proliferation of fibroblasts, but the cells tend to arrange themselves in thin sheets between broad layers of collagen fibrils, so that a striking and characteristic microscopic picture results.

The so-called myxoma and myxosarcoma develop from fibroblasts. They do not differ from the fibroma and fibrosarcoma except in the presence of fluid containing a variable amount of mucin between the collagen fibrils. The same holds true of the cells in the umbilical cord. These tumors do not deserve, therefore, to be regarded as a special type of tumor but should be looked on as a variety of the fibroma and fibrosarcoma.

The so-called giant-cell sarcoma, usually occurring in connection with bone, deserves special mention. At least two types of giant cells occur in tumors. One type is due to multiple mitoses, and occurs in a variety of tumors, for example, glioma, fibrosarcoma, lymphocy-

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.
* From the Pathological Laboratory of The Boston City Hospital.

toma. It is a true tumor-cell with the characteristics of the other tumor-cells and signifies usually rapid proliferation under very favorable nutritive conditions. Tumors containing these giant cells are rarely or never called giant-cell sarcomata. That term is reserved for tumors containing giant cells of another type which are not due to multiple mitoses but to fusion of endothelial leukocytes to form foreign-body giant-cells. The leukocytes are attracted into the tumor usually by bone injured in some way by the growth of the tumor. They form foreign-body giant cells (osteoclasts), just as they do around bone requiring removal under normal and pathologic conditions. Their occurrence in tumors signifies usually erosion of bone, rarely the presence of free fat and fat crystals or other substances. They occur most commonly therefore in fibromata and fibrosarcomata involving bone. They occur also in inflammatory processes. Epulis, the term commonly applied to giant-cell formations about the jaws, is probably often only an inflammatory new-formation, not a true tumor. The presence of the giant-cells leads to a wrong diagnosis. This view is favored by the simple treatment needed to get rid of most of these lesions. Giant-cells of this type are therefore not true tumor-cells, and hence should not be mentioned in naming the tumor. That must be diagnosed and named from a study of the rest of the tissue minus the giant-cells.

The smooth muscle cell is a long spindle-cell with a rod-shaped nucleus. It is characterized by having longitudinal striations or fibrils in the cuticle. These fibrils fuse together at each spindle end of the cytoplasm to form a fairly coarse fibril of considerable length. From the smooth muscle cell arise slow and rapidly growing tumors called leiomyomata. These tumors occur occasionally in the skin, both single and multiple. The rapidly growing tumors are rare.

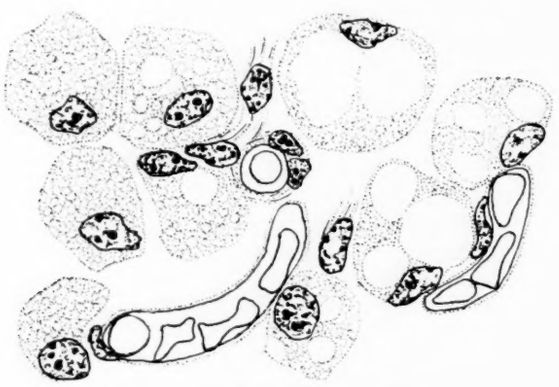

Fig. 1.—Fat cells of embryonic type.

The fat-cell is characterized by the storage of fat within its cytoplasm. It is a cell of mesenchymal origin which produces no intercellular substance and which in the embryo and in young emaciated children resembles to some extent a liver-cell, with finely granular cytoplasm. (Fig. 1). In this early stage the fat when present is usually in small droplets and the nucleus remains centrally located. In the adult type of cell the fat is in one large drop and the nucleus is pushed to the periphery.

The ordinary tumor, the lipoma, resulting from uncontrolled growth of fat-cells, is composed of fat-cells of the adult type and is too well known to require description. Rarely, however, a rapidly growing lipoma may arise in which the cells (Figs. 2 and 3) are all, or for the most part, of the embryonic type with granular cytoplasm in many of the cells and the fat in small droplets surrounding the nucleus, which is situated in the center.

Neuroglia-cells are characterized by the production of but one kind of fibril, the neuroglia fibril, which is in intimate contact with the cell producing it. Gliomata, the tumors arising from neuroglia cells, occur ordinarily only within the central nervous system, but they may arise rarely in the nasal sinuses and over the coccyx beneath the epidermis; in the latter region from remains of the neural canal. Two cases arising in this situation and carefully studied were distinctly infiltrative in their manner of growth and in one case metastases took place into both groins.

The pigment-cell (chromatophore) occurs in the skin, the eye, and the membranes of the central nervous system. In the skin the cell is of mesenchymal origin. It varies much in shape, that is, it is polymorphous, produces no intercellular substance, and is characterized by the property of producing a brownish pigment. Abnormal collections of pigment-cells in various stages of development, with and without pigment, frequently occur in the skin. They are known as congenital nevi.

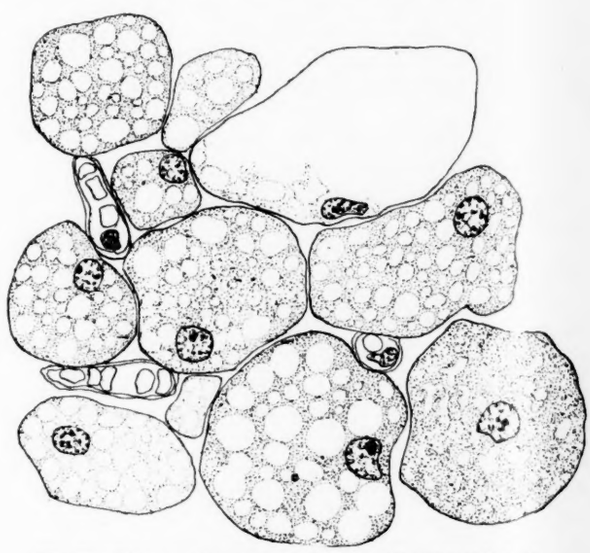

Fig. 2.—Lipoma composed of fat cells of embryonic type.

The tumors arising from pigment-cells are generally called melanomata. The cells composing them vary much in shape, from spindle to round, and also in size. The pigment varies greatly in amount. Many cells and clumps of them contain no pigment; others have so much that it is difficult to find the nuclei. The arrangement of the cells varies also; some tumors, composed of bundles of spindle-cells running in different directions, suggest a fibrosarcoma, especially if pigment is slight or absent. In other tumors the cells may show more or less of an alveolar arrangement, but usually little stroma is developed. Frequently by necrosis, dissolution, and absorption of cells at a distance from the blood-vessels, sheaths of tumor-cells are left around the blood-vessels suggesting a perithelial type of growth.

The endothelial cell is poorly characterized except by the lack of distinguishing features other than that of lining vessels and spaces. Three varieties are recognized, those lining blood and lymph vessels, which are nearly related and perhaps identical, and those lining the subdural space. I shall speak here only of blood-vessel endothelium.

The tumors arising from endothelial cells should be called endotheliomata. Most pathologists at present, however, reserve this term for the rapidly growing tumors and speak of the slow growing ones as angiomata. To distinguish this group of endotheliomata from the two other types the term hemangioendothelioma is advisable. Two varieties are recognized, the capillary and the cavernous hemangioendotheliomata.

The capillary form always grows infiltratively, not expansively. it invades fat and muscle-tissue, nerves and blood vessels. In spite of its growing in an infiltrative manner, I know of but one case on record in which metastases took place. These tumors are prone to recur, however, because the surgeon does not remove a sufficiently wide margin of apparently normal skin.

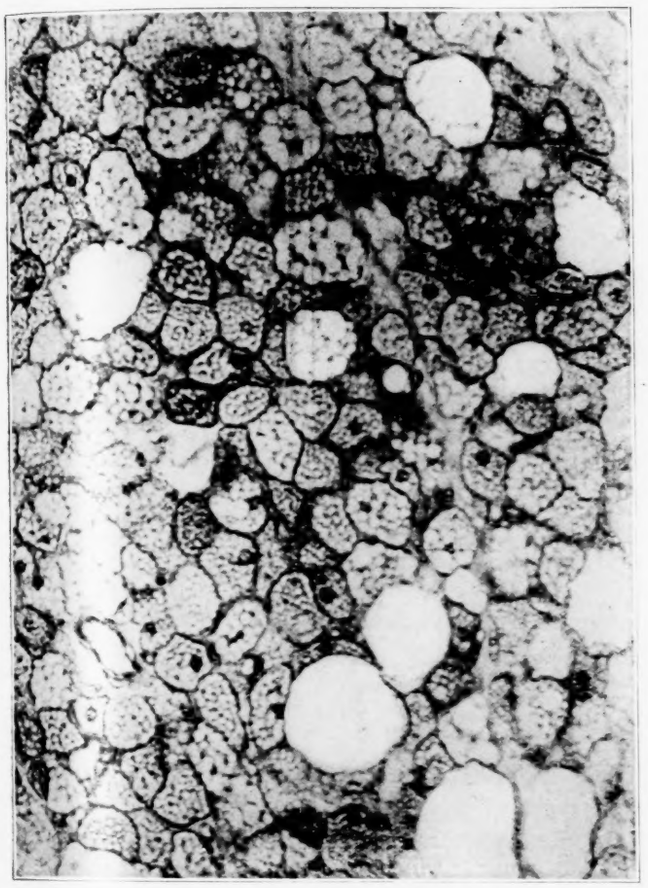

Fig. 3.—Lipoma composed of fat cells of embryonic type.

These tumors may grow slowly or rapidly and may be very destructive locally. Certain peculiarities of structure deserve mention. The endothelial cells may thicken up so as to form several layers around the lumen and mitoses may occur in any of these layers. If the lumen becomes obstructed in any way from hemorrhage or pressure the endothelial cells continue to multiply, forming whorls; less often they form irregular masses suggesting the alveolar arrangement of a carcinoma; lumina are not reformed. The connective tissue cells around the blood vessels of the stroma, in part grow in between the endothelial cells, in part deposit collagen fibrils between them so that the tumor may come to resemble fairly closely a fibrosarcoma; but the whorls of cells and the lack of fibroglia fibrils betray it. Moreover, the tumor in typical form may be found invading the fat tissue outside the tumor nodules.

Rarely all the vessels are surrounded by several layers of endothelial cells so that a perithelial type of tumor is suggested. Still more rarely papillary masses of endothelial cells may project into the lumina of vessels. Direct growth of this tumor itself within blood-vessels is not so rare.

The cavernous type of the hemangioendothelioma is not very common. It consists of large blood-spaces separated by thin partitions of connective tissue lined on each side with endothelial cells. These tumors may spread and give rise to different nodules, which follow in a chronologic sequence and yet seem to have no direct relation to each other. The explanation of the sequence of events is simple. The tumor grows within blood-vessels, extending along them and dilating them. In places it destroys or ruptures them and forms the large nodules so evident macroscopically.

There are many varieties of nerve-cells in the central nervous system. The one common and distinguishing characteristic of them all is the production of nerve-fibrils.

Tumors arising from nerve-cells are called neurocytomata.[1] They are probably not so rare as commonly supposed. They arise most frequently in the adrenal glands and may give rise to multiple metastases within the skin, bone marrow, liver and lymph nodes. The tumors in general suggest a lymphocytoma of the large cell type but they have one distinguishing feature—bundles of delicate fibrils running parallel. The nuclei of the cells are relatively large and the cytoplasm is small in amount and poorly defined. Occasionally, apparently when the fibrils are poorly developed and short, small clumps of fibrils are found with the cells arranged more or less in a circle around them to form a sort of rosette.

CONCLUSIONS

In conclusion I wish to say that it is advisable so far as possible to discard certain loose and indefinite terms frequently used in connection with tumors and strive for definite diagnoses and exact terms. For example, "spindle-cell sarcoma" refers only to a tumor with cells of a certain shape. The commonest tumor which grows rapidly with cells of this shape is the fibrosarcoma, but other tumors which may have cells of this shape are the chondrosarcoma, the osteosarcoma, the hemangioendothelioma, the leiomyoma, the rhabdomyoma, the glioma.

A round-cell sarcoma is most often a lymphocytoma, but other tumors which may have round cells are the osteosarcoma, the leiomyoma, the glioma, the myeloma, and the neurocytoma.

The so-called perithelial angiosarcoma is in my experience most commonly a melanoma, but other tumors which may grow in this form as the result of malnutrition (necrosis, dissolution, and disappearance of cells at a distance from the blood vessels) are fibrosarcoma, glioma, neuroma, and carcinoma (of breast and epidermis).

True tumor giant-cells occur in many tumors, glioma, fibrosarcoma, lymphocytoma. In the so-called giant cell sarcomata, the giant-cells are foreign-body giant-cells due to the fusion of endothelial leukocytes. They are not tumor-cells and should not be named in the diagnosis. The tumor itself is usually a fibroma or a fibrosarcoma. It may be only inflammatory tissue full of giant-cells. Probably the so-called epulis of the jaw is frequently of this nature, and not a tumor.

Harvard Medical School.

1. For the lantern slides of the neurocytomata shown I am indebted to Dr. J. H. Wright.

THE PATHOLOGY OF MALIGNANT EPITHELIAL GROWTHS OF THE SKIN *

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The presentation of this subject as a lantern exhibition permits the demonstration of a large number of slides showing the usual and unusual features of the two main types of cutaneous epitheliomata and some of the conditions which precede their growth. As it is obviously impossible to reproduce all, either pictorially or graphically, in a paper of this scope, only a few selected ones will be introduced to emphasize certain features, and in the text reference will be made to those of interest which have been published elsewhere.

PATHOLOGY

There is perhaps no field in tumor pathology which offers such facilities for the study of diversity in histologic structure as the growths of the skin, nor one which furnishes the opportunity for investigating such a variety of mediate causes. In the vast majority of cases a tumor when first seen is beyond its first inception, malignancy is already established, and its genesis and initial changes left to speculation. In the skin, however, owing to the ease with which changes can be noted, and the slower rate of growth, it is possible frequently to obtain material which shows early transitional stages. In addition, we have a group of conditions which are so definitely associated with tumor formation that on a clinical basis alone we do not hesitate to prognosticate their outcome. These affections, classified as precancerous and highly important from a dermatological standpoint, permit us not only to draw deductions as to the etiologic and biologic factors concerned in malignant proliferation, but they confirm the view that a plurality of causes is operative in the etiology of cancer. While admitting the contention of Borrmann and other adherents of the Cohnheim theory, that in certain cases tumors have their origin in embryonal cell rests, as in those springing from certain nevi, the weight of evidence in the majority of cutaneous epitheliomata is not in favor of this view. In the examination of early growths, especially the superficial epitheliomata which arise on a seborrheic base, single or multiple foci of proliferation can be seen proceeding directly from the epidermis. These areas are usually sharply delimited from the surrounding surface and appear as swellings bulging toward the corium. The cells are smaller, more closely and less regularly placed than normally and the basal layer has lost its symmetry. They are, furthermore, to be distinguished from the surrounding cells by their larger and deeper staining nuclei. In some of the superficial epitheliomata of the Paget type edema of the affected area is the characteristic early

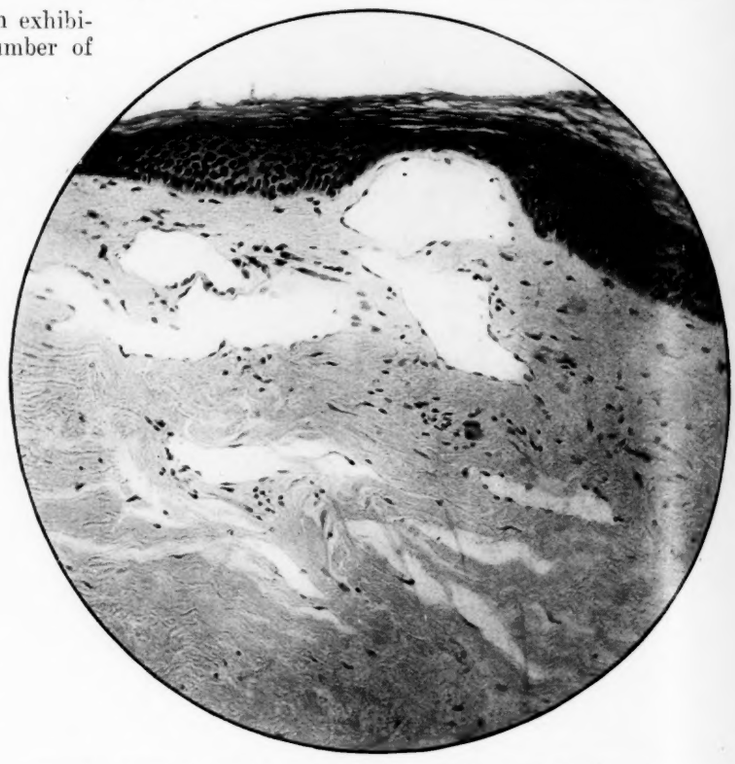

Fig. 5.—X-ray dermatitis (Zeiss 8 mm., C.O.4). Illustrating degenerative change in the corium and tortuous capillary dilatation.

Fig. 3.—Xeroderma pigmentosum (Zeiss 8 mm., C.O.4). Small warty growth, showing hypertrophied horny layer and rete. Many cells of latter show degenerative changes, are vesicular and have large deeply staining nuclei. Corium degenerated and dense infiltration occupies upper layers of cutis in close juxtaposition to epidermis.

* Read with lantern exhibition before the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* Because of the space required the article is abbreviated in THE JOURNAL, by the omission of some of the pictures and part of the text, but it appears in full in the Transactions of the Section and in the author's reprints.

change; the cells increase in volume and their pale bodies stand out in sharp contrast with the neighboring normal ones.[1] Findings like these and the evidence offered by the precancerous class of diseases, it seems to me, negative the view which incriminates isolated cell groups, in the skin at least.

Fig. 6.—Arsenical keratosis (Zeiss 8 mm., C.O.4). To show degenerative changes in cells and clumping of nuclei probably due to amitosis.

PRECANCEROUS AFFECTIONS

Of the precancerous conditions senile keratosis comes first in order of frequency. Its sites of predilection are the face, neck, and backs of the hands, the parts of the body exposed to the influence of light. It is not infrequently accompanied by seborrhea of the face and scalp, so that it is difficult to know just how much weight to attribute to the infection of the epidermis and how much to the influence of light. The various stages of its development are frequently seen coincidently. The first noticeable change is the brownish discoloration of the skin. This is followed by a slight thickening of the epithelial cells and practically corresponds to the seborrheic wart. As the lesion develops it increases in depth, its warty character becomes more pronounced and it is in this stage that we have virtually an epithelioma. These lesions differ from the ordinary verrucæ in that they are more pigmented and less elevated, and in their later stages they are covered by a greasy friable crust which is not so adherent as the epidermic layers of the ordinary wart. It can be detached with little effort and then reveals a bleeding papillomatous condition. At this stage the lesion can be readily removed by currettage and caustics and heals with the production of a slight scar. Not infrequently in the same individual we can see lesions in all stages of development—the telangiectases, brownish or blackish discolorations not appreciably raised above the surface, flat seborrheic warts and those showing considerable elevation, with the adherent crust above referred to.

1. Paget's Disease of the Gluteal Region, Jour. Cutan. Dis., 1905, xxiii, 193.

ILLUSTRATIVE CASES

Sections from a patch of keratosis from the cheek of a man 60 years old showed a thickened horny layer, with nuclei fairly well preserved; attached to its under layers were cornified plugs, which distended the mouths of the pilosebaceous apparatus. The granular layer was missing. The rete was irregularly thickened and thinned and had areas of degeneration which stained badly and contained vacuoles. On the whole the cells were smaller than normal and the sharp contour of the basal layer was lost. The connective tissue in the upper corium was degenerated, its fibrillary character was lost and it had acquired a homogeneous appearance. The majority of the vessels had very thick walls and small lumina. A mild inflammatory infiltration was present in the superficial part of the cutis. In addition to numerous pigmented, telangiectatic and keratotic lesions on his face and hands, he had three active squamous-celled cancers, one over the bridge of his nose, another under his left eye and the third over the left parotid region.

A senile keratoma, removed from a patient 47 years old, who presented a squamous-celled epithelioma of the index finger, several warty growths on the backs of his hands, as well as telangiectases, atrophic and pigmented lesions, showed, under the low power, a striking resemblance to the warts seen in xeroderma pigmentosum. The higher power showed principally the degenerative changes in the cells. From hyalin

Fig. 7.—Basal-celled epithelioma developing in a lupus scar (Spencer ½ in., Zeiss Proj. Oc. 2). Tumor consists of irregularly rounded, oval and elongated masses of small cells with central degeneration. There is no connection with the surface epithelium.

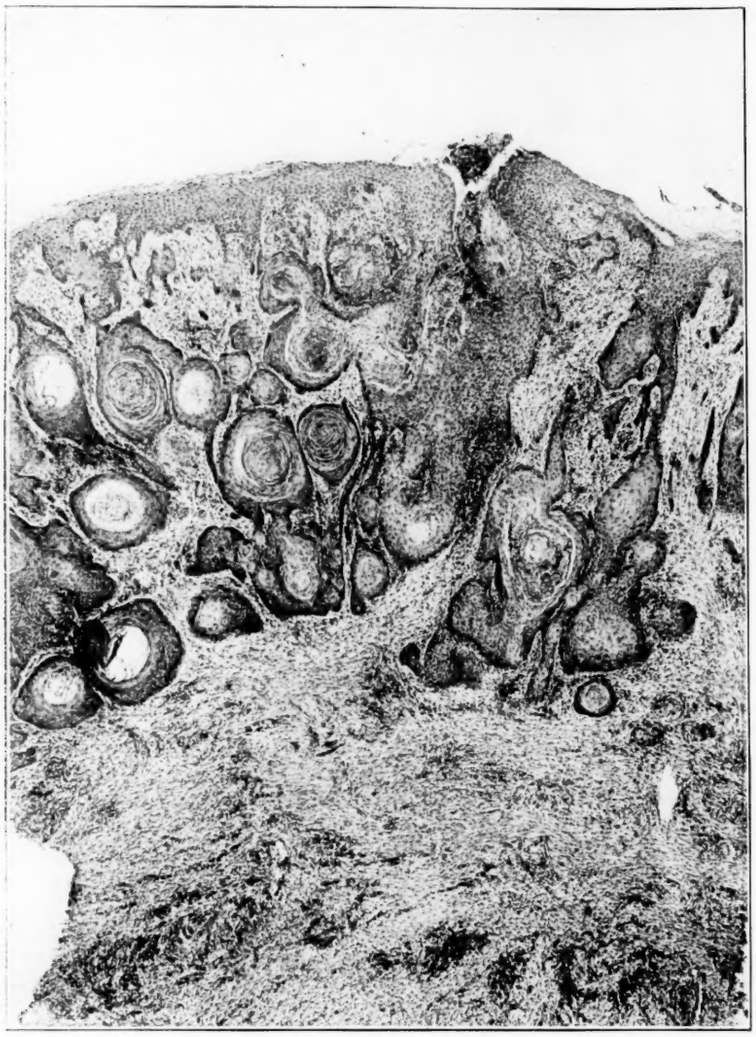

Fig. 8.—Squamous-celled epithelioma (Zeiss Planar 20 mm., C.O.4). An epithelioma which developed in the scar following a burn received 40 years previously. The scar broke down and healed several times during this interval. The slow course of the tumor, which was relatively benign, probably finds its explanation in the cicatricial capsule-like connective tissue resisting the epithelial growth.

and hydropic changes they had become voluminous, lost their prickles and assumed a more or less rounded form with a well-defined periphery, as though encapsulated. In the older portions they had become confluent and their outlines were no longer visible. The nuclei in many had entirely disappeared or only shrunken bits of chromatin remained, surrounded by a clear space, or were connected with the cell by radiating protoplasmic threads. In addition free cells were found appearing as spheres of hyalin with a dense nucleus and a vacuole. The connective tissue beneath the wart, and especially on either side of it, was degenerated and rarefied. It is this rarefication of the subepithelial tissue which Thiersch considered the necessary or determining element in tumor growth. By bringing about a disturbance in tissue tension the restraint to epithelial invasion is removed.

Figure 3 is an example of xeroderma pigmentosum from the tissue of a young man, aged 21, with the typical features of the disease developed on his face, neck, hands and lower portions of the forearms. He also had a well-advanced epithelioma of the lip. The horny layer is markedly thickened, very dense and firmly adherent below The granular layer is absent. The rete is very irregular, consisting in places of only two or three layers of stretched cells and in others of irregular processes, whose cells vary in shape and size, but have atrophic bodies and conspicuously large nuclei. The prickles are not distinguishable as the cells are more or less welded together. Hyalin degeneration is a marked feature. The basal layer is in a state of disorganization, with the tissue immediately below it vacuolated. The corium is atrophic and degenerated; the papillary and subpapillary regions are occupied by a dense infiltration of lymphocytes and plasma cells.

Figure 5 illustrates telangiectases. The tissue is from a patch of dilated capillaries which followed an *x*-ray burn. The horny layer is considerably thickened, the rete flattened and hollowed out by the dilated capillaries. The cells are smaller than normal and many of them contain vacuoles. The papillary bodies have been entirely obliterated and the corium changed by hyalin degeneration. The tortuous ectatic capillaries extend from the middle two-thirds of the cutis to almost beneath the horny layer. Some of the sections contain partial thrombi.

Arsenical keratosis (Fig. 6). This tissue came from a patient kindly referred to me by Dr. Jackson. He had taken Fowler's solution for five years. On his body and hands were numerous scaling, pigmented and warty lesions. The section from one of the keratotic areas shows the thickened horny layer dipping down into the rete, producing a marked undulatory line between the two. In some of the layers the nuclei are well preserved; in others as the result of dyskeratosis there are large balloooned bodies which appear like double-contoured organisms. The granular layer has almost entirely disappeared, the horny layer proceeding directly from the Malpighian layer. In the latter the points of interest are acanthosis and edema, causing a widening of the intercellular spaces. Here and there the cells have disintegrated, their remains lying in cystic spaces or several have fused to produce large, deeply-staining, irregular bodies connected by cytoplasmic threads to the sur-

Fig. 9.—Paget's disease. Disease began about nipple two years previously. Condition shows an eroded moist surface, with defined somewhat polycyclic border; nipple retracted. Extending from primary lesion and covering almost entire surface of breast a lymphangitis is present. Over this area were scattered lesions similar to primary one. The mammary gland was the seat of a diffuse carcinoma. Axillary node enlarged.

rounding cells. Nuclear degeneration is as common as cytoplasmic. Some of the cells contain central clumps of chromatin; in others it is dispersed through the cell, and a further sign of degeneration is the presence of clumped nuclei, due probably to amitotic division. The basal layer is disorganized at points where the corium is more or less rarefied. The superficial part of the cutis has a granular appearance and the connective tissues cells stain only faintly. Aside from this a slight lymphocytic infiltration is seen about some of the capillaries.

Leukokeratosis produced by syphilis or tobacco, or occurring independently of either, is probably the most common antecedent change in mucous membrane epitheliomata of the mouth.[3]

In addition to the foregoing, which represent a group of conditions whose natural history includes a termination in epitheliomatous formation, there is another class of diseases which offer a favorable base for the development of malignancy. They are chronic skin diseases, as syphilis, lupus vulgaris, lupus erythematosus, Darier's disease, psoriasis, scars from various causes, etc.

Cancers secondary to tuberculous lupus are, in the majority of cases, classed as scar cancers or are attributed to the use of *x*-ray in treatment. However, they also develop on an active lupus and are usually of the squamous-celled variety, in which case both processes appear coincidentally under the microscope.

The case illustrated is of peculiar interest in its departure from the usual type seen in connection with tuberculosis or scars. It was originally reported as an endothelioma,[4] but a greater familiarity with the basal-celled growths and their degenerations has led me to include it in the latter group. The tumor, which developed in a lupus scar, occupied the entire corium as large and small cellular masses, irregularly rounded, oval or elongate (Fig. 7). The cells, many of which are spindle-shaped from pressure, have rather large oval

Fig. 10.—Paget's disease of nipple (Zeiss 8 mm., C.O.4). The epidermis shows characteristic change which begins at basal layer and extends to the upper layers, viz., edema, vacuolization and degeneration of protoplasm. At the surface of epidermis is a marked collection of polynuclear leukocytes where erosion has taken place. In the corium cross-section of lymph space showing infarct of tumor cells. Infiltration of lymphocytes, plasma and mast cells in the papillary and subpapillary layers.

Fig. 11.—Lymphangitis in Paget's disease of nipple (Zeiss 8 mm., C.O.4). Section from erythematous area radiating from disease of nipple. Shows lymph space containing an alveolus of cancer cells.

nuclei, rich in chromatin and contain numerous mitotic figures. The central portions of the cell masses from degeneration are cystic and contain detached cells and detritus. There is no connection anywhere with the surface epithelium, and no evidence of the tuberculous process is present.

In a case of epithelioma following a burn, which was previously reported,[5] the tumor developed on a chronic ulcer of the thigh following a burn received forty years previously. The ulcer healed and broke down several times, eventually passing into neoplastic formation. The slow development probably finds its explanation in the histologic structure (Fig. 8), which shows the sharp limitation of the growth by the underlying sclerotic tissue, which, capsule-like, retarded the epithelial invasion.

The coexistence of epithelioma and psoriatic patches is a rare occurrence, but through the kindness of Dr. George T. Jackson I had an opportunity of seeing such a case several years ago. Multiple tumors of the basal-celled type were present. The patient subsequently developed metastases in the mediastinal glands and internal organs and died of

3. For a description of the character of these lesions the reader is referred to Affections of the Mucous Membranes and their Relation to Skin Diseases, Jour. Cutan. Dis., 1904, xxii, 397.

4. Am. Jour. Med. Sc., August, 1900.

5. Some of the More Unusual Forms of Epithelial Growths of the Skin, THE JOURNAL A. M. A., Jan. 8, 1910, p. 91.

carcinosis. The tumors were made up of masses of small, deeply-staining cells with scant stroma and numerous foci of degeneration of a mucinous character in the cellular aggregations.

The slides demonstrating epithelioma and Darier's disease were made from specimens kindly loaned me by Dr. Grover W. Wende from his case of multiple squamous-celled epitheliomata consecutive to Darier's disease. The interesting feature in connection with these growths was the degenerative forms and cell inclusions.

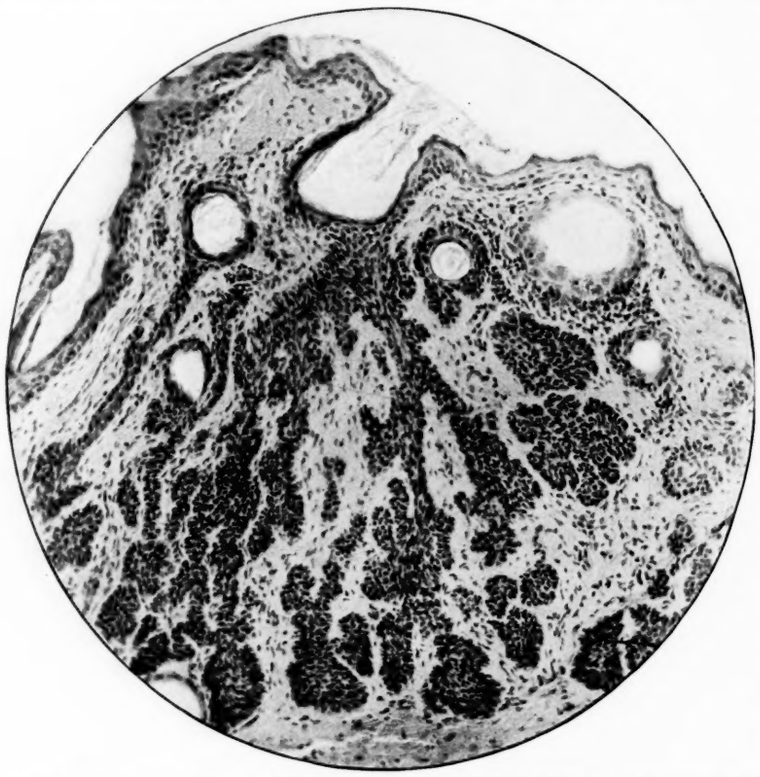

Fig. 14.—Rodent ulcer (Zeiss 8 mm., C.O.4). An early rodent ulcer near ala of nose, taking its origin from the lanugo hair follicles.

The subject of malignant growths secondary to nevi, with illustrations, has been previously discussed by me.[5, 6]

Paget's disease of the nipple is regarded by many authors as a superficial epithelioma, and this view is probably justifiable on clinical grounds, since we find in other portions of the body superficial flat epitheliomata having an eroded granular center and a slightly rolled polycyclic margin, strongly resembling the nipple lesion. Histologically, however, some points of difference are to be noted, especially in the older portions of the extra-mammary cases. If the edge of these lesions is examined, the picture in many instances bears a very close resemblance to the mammary disease. The cells are edematous, vacuolated, and show the peculiar degenerative changes of the affection. There is, however evidence of proliferation, and if the central portion of the area is examined, true epitheliomatous formation of the small basal-celled type will be found.[1, 5] In the nipple region, while there is a marked acanthosis of the epidermis the line of demarcation between epidermis and corium is preserved, and in a series of cases that I have examined downgrowth did not occur. In these cases there was concomitantly a mammary carcinoma and the corium was infiltrated solely with growth from the lactiferous ducts below.

The photograph (Fig. 9) is from a Russian woman about 55 years of age, referred to me by Dr. Keene. The patient stated that the condition of the left breast had existed about two years. It presented the typical features of Paget's disease, a dark red, granular, exuding surface with sharply defined periphery, with here and there evidence of beginning cicatrization in the center of the lesion. She also presented a group of small secondary ulcerated and encrusted lesions outside of the original patch. These lesions suggested autoinoculation or the breaking down of a lymphangitis, which radiated for a distance of about 3 inches from the periphery of the patch. The entire breast was the seat of a carcinomatous tumor, which was not sharply circumscribed, but seemed to involve the entire gland, probably due to the simultaneous infection of the lactiferous ducts. She also had an enlarged node in the axilla.

Tissue from the nipple region (Fig. 10) shows the epidermis riddled, as it were, by some destructive agent. The process has proceeded to complete autolysis in some areas, or only distorted nuclei and fragments of the cell body remain. The surface of the epidermis is eroded and covered by a crust of polynuclear leukocytes, remains of epidermic cells and fibrin, and below this there are miliary collections of leukocytes.

The specific degeneration in Paget's disease begins in the deepest layers of the rete and causes the cells to become paler and increase in volume. From swelling the prickles become indistinct or disappear entirely and vacuoles make their appearance. In this way there may come to be left only a ring of protoplasm separated from the nucleus by a clear space, or the latter may be distorted or pushed aside by one or more vacuoles. Even-

Fig. 16.—Multiple epitheliomata. Woman, aged 60, with multiple superficial flat and fungating epitheliomata.

6. Melanomas and Some Types of Sarcoma of the Skin, THE JOURNAL A. M. A., Jan. 8, 1910, p. 91.

tually the cells are separated and lie free in cavities and assume most bizarre forms and appearances. The basal layer, although degenerated, still sharply marginates the epidermis from the corium. In the cutis, with the beginning epidermic changes, an infiltration of mast and plasma cells appears in the papillæ, later becoming more diffuse and extending to the subpapillary layer and the tissue below. In the case under consideration the superficial lymphatics contained cancerous infarcts.

The histologic findings from the area of lymphangitis are shown in Figure 11. The tissue immediately about the cancer embolus is denser than elsewhere, owing to the reactive fibrosis which has taken place. The cells are large, irregular and show pronounced degenerative changes. Their protoplasm is coarsely granular, and in going through the sections seriatim all types of so-called cancer bodies, dependent on cellular and nuclear origin and aberrant mitosis, are to be met with.

These curious changes are, however, not peculiar to malignant growths but are also found in chronic inflammations, and irregular mitotic figures have been produced experimentally in various tissues. Degenerating cells may also divide by amitosis, giving rise to a clumping of nuclei.

Illustrations and report of lymphangitis in cancer *en cuirasse* will be found in my paper already referred to.

CLASSIFICATION

Cutaneous carcinomata in the great majority of cases take their point of origin from the epidermic covering of the sheath of the follicles, the glandular epithelium only exceptionally proliferating primarily. Although there are many classifications based on the microscopic or macroscopic appearances, relative malignancy or genesis, the histologic division of cutaneous epitheliomata into two great groups, according to certain prominent characteristics is the most practical, namely, the prickle-cell group, and the basal-cell group of Krompecher. In the former, the tumors are composed of large cells which have retained their prickles; they are early destructive, metastasize and have a general malignancy. In the basal-celled group the tumors are made up of small cells which possess no prickles and have relatively large nuclei; they do not as a rule metastasize and have usually only a local malignancy. While recognizing the validity of the criticism made by Adami that all cells originate from the basal layer, it is nevertheless a fact that in the one case only one type of cell continues to proliferate while in the other differentiation goes on. As a rule, too, these two types conform more or less with distinct clinical pictures, though occasionally cases are seen in which a positive diagnosis can only be made by the microscope. Patients with multiple epitheliomata sometimes present the two types with not sufficient clinical difference to tell them apart.

Histologically the typical feature of squamous-celled growths is the solid prolongations or downgrowths from the epidermis, which spread out in different directions or on section give rise to masses of alveoli of various shapes and sizes lying in a connective tissue stroma. In the characteristic members of this group the epidermal characters are preserved and result in epithelial pearls.

The alveoli which go to make up the tumor have one or more centers of pearl formation; their periphery corresponds to the basal layer, consisting of small cells with deep-staining nuclei. Within this are several rows of prickle-cells with a concentric arrangement; the majority have lost their prickles and are in various stages of keratinization, appearing as more or less flattened or rounded plates, anuclear, or with nuclei undergoing disintegration. As a rule the activity of pearl formation is an indication of malignancy. In the corium or supporting stroma is usually found an inflammatory reaction of varying grade. Not infrequently a mucinous degeneration has taken place, or the tissue is porous, or shows other signs of loss of vitality.

In tissue undergoing malignancy certain changes take place which indicate the vegetative activity of the cells. These are a smaller cell with oval or rounded cell body, clear cytoplasm and a relatively large, deeply staining nucleus; the relations of the cells to one another become changed, they become crowded and occupy a much smaller space than under normal conditions. This is especially true of the basal-celled tumor and it is not so difficult to make a diagnosis in these cases of early epithelioma. In the squamous-celled type, however, particularly those which develop on ulcerated surfaces, it is not so simple to say whether one is dealing with tumor formation or only atypical proliferation. In chronic ulcerations there is a marked tendency for the epithelium at the edges of the ulcer to grow irregularly downward and infiltrate the tissue beneath. These processes may become snared off and sometimes develop pearls, when it is practically impossible to determine from the histology the exact pathologic condition.

Of the basal-celled epitheliomas the rodent ulcer may be taken as the type, as it is the form most frequently encountered. These tumors are made up of an undifferentiated type of cell, yet, contrary to the rule, are the least malignant of epithelial tumors. Various degrees of anaplasia are encountered and a more or less spherical, polygonal or even spindle-shaped cell may be encountered. Not only the cellular morphology but the general structure of these basal-celled tumors varies and has led to the recognition of certain well-defined types. It has been suggested by Darier that this varied architecture might be explained as the attempt on the part of the basal layer to functionate, as during embryonic life, in the production of the appendages of the skin.

Descriptions and illustrations of cylindroma and tricho-epithelioma will be found in a paper previously published,[5] and of benign cystic epithelioma and other forms of growths in papers likewise already published.[7]

The picture of the ordinary rodent ulcer differs a great deal in appearance and may, in one instance, appear as a solid downgrowth from the surface epithelium, with little tendency to branch; in another the larger masses may show central cystic degeneration and peripheral budding, or fine or coarser processes of cells bifurcate throughout the cutis. Figure 14 illustrates a rodent ulcer near the ala of the nose originating from the hair follicles and forming solid tubes or cords of cells which give off lateral processes. Tricho-epithelioma, which also develops from lanugo hair follicles, has a somewhat different structure, which may be due to an attempt on the part of the cells to differentiate. These growths clinically may appear as morphea-like lesions, as already described.[5]

A frequent concomitant of the basal-celled tumor is the hyalin or mucinous degeneration, which affects either the cells or the connective tissue; or both. Degeneration is considered by some authorities, as Adami, to indicate malignancy, but in the skin we find the tumors most

7. Clinical and Pathological Observations on Some Early Forms of Epithelioma of the Skin, New York Med. Jour., June 9 and 23, 1900; and Cancer of the Skin, Jour. Cutan. and G. U. Dis., 1902, xx.

prone to degenerate are of a benign type. In mucinous or pseudo-mucinous degeneration the cells appear indistinct and poorly differentiated, in areas breaking down and forming cystic cavities which contain the products of degeneration. Aside from these changes there may occur a central autolysis of cells (Adami) which may be due to lack of nutrition or to metabolic products of the tumor cells themselves. Extractives or diffusible products *in vivo* may have the same effect in producing this autolysis as the introduction of a vaccine from a tumor.

Many multiple epitheliomata in the early stages closely resemble Paget's disease. They present all grades from pale and red scaling patches, the size of a split pea or smaller, to patches as large as the hand. They have sharply defined, scalloped margins showing very slight tendency to elevate or pearly rolled edge. Some of them maintain their red and scaling appearance and others become the sites of fungating growths (Fig. 16). These tumors often develop on patches of seborrheic dermatitis, which suggests some infectious agent. It is possible that the bottle bacillus, in combination with the staphylococcus, stimulates epithelial proliferation. Even in the early stages, before any apparent thickening of the epidermis is present, proliferation of the basal layer can be determined by histologic examination.

CONCLUSIONS

A study of skin cancers suggests to the observer, if it does not demonstrate absolutely, that no one agent is concerned in the malignant proliferation of epithelial tumors and that cutaneous carcinomata have a multiple etiology. The development of epitheliomata following exposure to sunlight, *x*-rays or other radiant energy is a strong argument against the parasitic nature of the disease. Likewise, the occurrence of epitheliomata in xeroderma pigmentosum and allied conditions of the skin which come on in old age or middle life is an additional argument against this theory. These conditions are preceded by changes identical with those met with in xeroderma pigmentosum, such as a dry atrophic skin, telangiectases, warty growths and, finally, malignant transformation. Furthermore, the action of chemical substances on epithelium, for which they have a special predilection, such as arsenic, tar, scarlet R., tobacco, etc., demonstrate that a variety of agents have the power to stimulate epithelial mitoses which may pass into malignancy. Cancers which develop on scar tissue or antecedent conditions of the skin like lupus, syphilis, etc., suggest that we are dealing with misplaced cells in some cases and in others with degenerative processes which lead to the abolition of the functional activity of the cells, which is followed, as a consequence, by vegetative activity, according to the theory of Oertel, Adami and others. In primary multiple epitheliomata we have several foci in which an infectious agent or some internal sensitizing agent may have acted on the cells and rendered them susceptible to a local factor.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LOEB, FORDYCE, MALLORY, BLOODGOOD AND PUSEY, CONSTITUTING A SYMPOSIUM ON CANCER *

DR. E. R. LECOUNT, Chicago: There seems to be a subsidence of belief in the parasitic origin of tumors and a diminution during the last few years of investigations to find such parasites. The prevalence of the former belief in a parasitic origin of tumors may be accounted for by the conspicuous place which the infectious diseases occupied in investigative medicine during the last few decades. With the lessening of search for a "cancer parasite," opportunity has been offered for researches in other directions. In general these have been of two sorts, one of them the old and well-worn subject of the histogenesis of tumors, still capable of yielding valuable information; the other, the newer study of transplantable spontaneous tumors of animals. In regard to the last of these, the results have been the development of a new branch of medical literature, new journals and the founding of special institutions by both private and public funds. Some of the articles dealing with phases of tumor transplantation are as difficult for the average physician to comprehend as many of the contributions to the problems of immunity. In both fields of investigation there is a great deal which needs collating for the physician with average equipment. In general the results which have so far occurred from study of these transplantable tumors are: 1. Learning that only a relatively small percentage of the transplantations lead to successful growing grafts. 2. The belief in a continuity of tissue growth —that all the successful grafts represent direct ancestry of the tumor with which the experiments began. 3. The undoubted experimental production of a malignant tumor which has been observed a few times when metamorphosis of a carcinoma into sarcoma has taken place. 4. The altered tactics among these investigators very recently in now attempting to modify, control or prevent processes of tumor growth which they are able to bring about; in other words, to produce an immunity. 5. The gradually growing suspicion, now almost a conviction in the minds of some, that the growth of malignant tumors is largely dependent on processes of metabolism not understood at present, but which may eventually be found analogous to those which are concerned with normal growth.

DR. F. B. MALLORY, Boston: I should like to say a word in connection with the paper of Dr. Fordyce in regard to epidermoid carcinomata. In the ordinary epidermoid carcinoma the cells differentiate like those of the epidermis. The cells of the rete Malpighii are cubical to cylindrical in shape and have considerable cytoplasm. These cells show a slight fibrillation of the cuticle. In the prickle-cell layer the fibril formation is much more marked. The fibrils are numerous and short. Finally the cells undergo a hemogeneous transformation with cornification which leads in the tumor to the formation of the so called epithelial pearls. In the non-cornifying type of carcinoma of the skin, the so-called carcinoma baso-cellulare, the cells vary from cubical to spindle in shape, have little cytoplasm and do not lead to prickle-cell formation. Instead these cells often produce numerous very definite straight and wavy fibrils of considerable length. The only cells in the skin which differentiate in this way are the cells leading to the formation of a hair shaft. These cells are spindle in shape, have little cytoplasm and produce numerous long, wavy fibrils which gradually undergo a homogeneous transformation and form the shaft of the hair. Judging from the cell differentiation they undergo this tumor arises from the hair matrix.

DR. J. W. VAUGHAN, Detroit: It is interesting to note that the results of the treatment with the *x*-ray in some cases are apparently far superior to the use of purely surgical measures. I will attempt to give a possible explanation for this fact. The late Dr. Hodenpyl of New York cured a cancer of the liver by the use of injections of ascitic fluid; the ascitic fluid gave good results in other cases. In addition to that we have the work of the experimenter who injected a suspension of cancerous cells into patients with beneficial results. In my own experiments I split up the cancer cells with a 2 per cent. solution of sodium hydrate in absolute alcohol. The non-toxic residue is insoluble, and I injected this portion with apparently beneficial results. Now, how does this apply to the better results we get with the *x*-ray, as compared to purely surgical measures? If you take cancer tissue and expose it to the *x*-ray for fifteen minutes it splits up the cancer tissue the same as the caustic sodium hydrate solution, into its toxic and non-toxic portions. The good results following the use of the *x*-rays, I believe, are due to the fact that the rays

* Another symposium on cancer appeared in THE JOURNAL last week, the one which took place in the Section on Pathology and Physiology at the St. Louis session.

form an active ferment within the body of the patient, which in itself splits up the cancer cell, and is not due wholly to the destruction of the cancer cell.

DR. WILLY MEYER, New York: In the treatment of skin affections by radium it is necessary, in the first place, to have radium of great strength. The application and treatment is comparatively simple and nothing that I know of can be compared to the results obtained by it. In cases of tumor of the skin, warts, epitheliomas, etc., Dr. Abbe proposes to make these radium applications for a period of half an hour and then send the patient away. I have obtained good results by using it in such cases at close range for five minutes the first day, adding to this time one minute for three successive days, and then on the fifth day allowing the radium rays to exert their effect on the immediate surroundings of the tumor for ten minutes. Then the patient is sent away and is not seen again for three or four weeks. By this method, in three different cases, I have seen the marvellous effects of radium, similar to those described by Dr. Abbe in his oration on surgery at this session. The patients with what we formerly called epithelioma or rodent ulcer, especially when located about the nose and eyes, where they are unusually disfiguring, come back to us after this method of treatment with a scar which, while it is somewhat below the level of the skin, remains a healthy scar, without showing any evidence of recurrence. In one of my cases two years have now elapsed without a recurrence; in two others the interval is shorter. There is nothing, in my experience, that can be compared with the wonderful effect of this method of treatment, which often acts where the *x*-ray fails. The only drawback is that radium is very scarce and very expensive. It is to be hoped that pitchblend will soon be found in large quantities in one of the many mines of our country. In that case I am sure dermatologists would be the first to make more frequent use of this apparently wonderful remedy.

DR. WILLIAM T. CORLETT, Cleveland: I believe that the ideal treatment for cancer is not yet known. During the last twenty-five years I have worked with my colleagues, the surgeons, in handling many cases of cancer, and I believe if one acts honestly and studies his cases well he will not adopt any one method of treatment to the entire exclusion of others. The main thing that has been brought out in the discussion thus far in the treatment of cancer is the early eradication of the disease. The method of this eradication, I believe, is of secondary importance, but it is the early recognition and thorough eradication that is followed by the best results. Everybody who sees many of these cases must be impressed with the fact that many patients are allowed to go on for months and years, receiving only dilatory or insufficient treatment, until the case is beyond the scope of operative measures. Every clinician must have observed, too, that there are different degrees of malignancy, as has been pointed out in the histologic presentation. There are cases of cancer of the skin in which the knife is the only means that can be employed, but in many cases the knife is not the best means. When it is, it is advisable in many instances to follow it by a thorough course of *x*-ray treatment. In regard to the use of caustics, we are familiar with the work of Robinson, and, while I have had little personal experience with caustics, I believe they are effective and in selected cases are good. One objection to them is that they are painful, and personally I believe in most instances there are better methods. The Roentgen ray in some cases is the best and only method, and in others the knife is not only the best but the only method. The Roentgen ray, I believe, is not the most efficient, for after this method of treatment only a certain number will remain free from the disease for a period of years. The method that I have adopted very largely for at least twenty-five years at the Lakeside Hospital is electrolysis. Of late this method has received attention by Brocq of Paris, and some Germans have spoken of it favorably. When I first adopted this procedure I did it at the request of the surgeons in cases in which the use of the knife was not deemed advisable. In these cases and in many others since then the results have frequently surprised me. They have been very favorable, and I hope some time in the near future to present a tabulated report of my results. That the procedure is indefinite, as stated by Dr. Pusey, I refuse to concede. My method is to introduce both electrodes around the malignant growth, penning it in, and afterward to introduce them into the growth itself. It is advisable, I believe, to go beyond the margin of the growth and produce a decided reaction. Many of these patients, to my personal knowledge, have gone from nine to fifteen years without a recurrence; others have died of old age, but I have no detailed statistics to present at this time. Finally, the method to be selected in the treatment of cancers of the skin should depend on the nature of the case. In some the knife is best, in others the Roentgen ray, while in suitable cases, before metastases have occurred, electrolysis is followed by excellent results. Of course, where glandular involvement has already taken place, it should not be considered; then the knife is imperative.

DR. A. RAVOGLI, Cincinnati: I was very glad to hear Dr. Mallory speak of the possibility of micro-organisms finding an entrance through the opening of the sebaceous glands, and to listen to Dr. Fordyce's remarks regarding the precancerous changes in the skin and the development of epitheliomas on certain dermatoses; that it was possible that a micro-organism might be the cause of this preceding disease of the skin, and then the causation of the cancerous changes. I have always believed in the parasitic origin of cancer, and still incline to that view. The success of the transplantation experiments, I think, point to the correctness of that theory. There must be something which produces the changes and the proliferation of the cells. I find that liquor formaldehydi gives me very good results in superficial epithelioma and carcinoma. My usual procedure is to curette the lesion and then apply a 40 per cent. dilution of liquor formaldehydi. The pain that this method gives rise to can be allayed by a 5 per cent. solution of cocain. After two or three days the surface of the lesion begins to harden into a whitish or yellowish eschar, and when this falls off, a second application is rarely necessary. I have had perhaps 40 or 50 cases in which my results with formaldehyd solution have been very satisfactory. I also wish to mention the use of Coley's fluid, especially in fibrosarcoma. I have seen cases in which the growths were so extensive as to be practically inoperable improve under the injections of the *Streptococcus erysipelatis* and *Bacillus prodigiosus*, as advised by Dr. Coley, and I think this remedy should be borne in mind in extensive cases that are not amenable to other methods of treatment.

DR. J. A. FORDYCE, New York: I was very much interested in what Dr. Mallory said in regard to the infiltrating angioma. This seems to bring it into connection with the angiosarcoma of Kaposi.

DR. WILLIAM A. PUSEY, Chicago: I am glad to see from this discussion that we are not so far apart in our views on this subject. I think the consensus of our views is that the proper treatment of carcinoma is to destroy it. It does not make so much difference how you do it, providing you do it. For this purpose I prefer to use vigorous meaures. I do not like formaldehyd solution or pyrogallic acid. As to any antibodies or ferments being produced when you treat carcinoma with the *x*-ray, I have looked for such an effect as longingly as anybody, and I am compelled to say that I have seen no such effects. I have seen great masses of sarcoma and carcinoma disappear under the *x*-ray, but as far as my experience goes I have not been able to see a glimmer of hope that by this method of treatment any antibodies were formed that were of any value. We must depend on the destruction of the cells by the *x*-rays. As to the comparative value of radium and the *x*-ray, I believe that the results of these two agents are very similar and that in both instances we are using practically the same agent.

Radium in Urology.—We distinguish three kinds of action of radium of which use can be made in urology; (1) bactericidal action; (2) action on the surface of tissues, consisting especially of decongestion and cellular modification; (3) alternative action on deeper tissues and on glandular organs.—L. Wickham, in the *Practitioner*.

PRELIMINARY REPORT ON THE CLINICAL SIGNIFICANCE OF INDICANURIA

BASED ON TEN THOUSAND EXAMINATIONS FOR INDICAN *

G. BAAR, M.D.
PORTLAND, ORE.

In the last four years I have made it a routine practice to examine the urine of every patient for indican. Jaffé's test, carried out as follows, has been employed:

The urine was precipitated with lead acetate (moderate quantity), filtered through a dry filter-paper, and an equal quantity of fuming hydrochloric acid with ferric chlorid (50 c.c. hydrochloric acid, with 8 to 10 drops ferric chlorid) added to the precipitate. This was shaken thoroughly for two minutes, then shaken with 1 c.c. chloroform for the same length of time.

The depth of the blue discoloration of the chloroform was taken as indicating the quantity of indican present; thus designating the quantatives as "very excessive," "excessive," "considerable," or "moderate." Traces of discoloration were not taken into consideration. In 10,000 urine examinations I found indicanuria present in about one-third of the cases, mostly, however, temporarily only and I designated these as "accidental indicanurias." The cases, however, in which there appeared constantly excessive indican, which formed the most conspicuous clinical symptom of the case, I called "indicanuria *par excellence*." Cases in which the examination of the whole body, the stomach contents, the feces and blood did not yield any abnormal findings, but in which indican in the urine appeared constantly in excessive quantity I considered "intestinal auto-intoxication," provided the complaints of the patient pointed, even though uncertainly, to the digestive apparatus. I wish to state here in advance that true cases of intestinal auto-intoxication are rare. This statement, I am well aware, places me in direct opposition to the general profession as held to-day. Such patients present clinically the following symptoms: pale complexion, dry skin, cold hands, and feet, dizziness, headaches, insomnia, nervous depression, neuralgias, migraine, rheumatic pains in the extremities, emaciation, fetor ex ore, often acne, seborrhea, furunculosis, and urticaria. The excessive amount of indican in the urine of these patients indicates simply the large increase in the sulpho-ethers and aromatic substances of the urine.

The indoxyl compounds are not toxic in themselves. So far as we know they are not capable of producing any such pathologic symptoms as enumerated above. The true toxic substances are the ptomains. The "aromatic bodies" (phenols, cresols, indol, skatol), however, develop in parallel degree with the former in intestinal putrefaction. While we do not possess a simple clinical procedure to estimate the ptomains, we do possess one in the above-mentioned Jaffé's test, which permits a practical estimation of the aromatic bodies and thus gives valuable information as to the metabolism of the body; for it is a proved fact that whenever ptomains are absorbed from the intestinal tract sulpho-ethers of the aromatic bodies are absorbed simultaneously, and by measuring the quantity of the sulpho-ethers we obtain knowledge of the intensity of the putrefactive processes within the bowel. There are but two exceptions to this rule: (1), individuals taking aromatic drugs internally, i. e., salol, phenol, naphthol; (2), organic suppurations. In this manner the excessive excretion in the urine of sulpho-ethers and aromatic compounds serves as an indicator of an abnormal formation and absorption of the products of microbic nitrogenous putrefaction. The intestinal anaerobic flora being one of putrefaction, we find it always predominating in cases of intestinal putrefaction.

It is not, however, the quantity of putrid substances formed in the bowel, but the quantity of those putrid substances entering the blood which causes the symptoms of auto-intoxication. This accounts for the fact that, on the one hand, we may find in cases of marked intestinal putrefaction many toxins in the stool but few only in the blood. Diarrhea, for instance, or mucus covering the intestinal mucosa, diminishes their passage into the circulation; and so also will perfect function of the other organic lines of defense, to wit, liver, kidney, pancreas, prevent their absorption. On the other hand, however, even a feeble intestinal putrefaction will cause auto-intoxication if the lines of defense are broken, owing, for instance, to deep ulcerations of the mucosa or insufficient function of the antitoxic organs. Thus we may explain the case of a young girl, who suffered with a bloody purulent diarrhea for eight months, not showing any indican in the urine but frequently excessive amounts in the feces. When an appendicostomy was performed on this patient for the purpose of irrigating the colon, the urine, which never before showed indican, showed excessive amounts of indican on the four days following the operation, together with distinct traces of bile.

These findings prompted me to examine urines of patients to be operated on, before and after operation. The following are some of the conclusions I reached:

1. Ether narcosis has no influence whatever on the excretion of indican.

2. In all gastro-enterostomies, entero-anastomoses, appendectomies—in all operations, in short, in which the intestinal wall was cut, we found excessive indican and distinct traces of bile in the urine for a week or more following the injury.

3. Moderate handling of the intestines during the course of an abdominal operation did not cause any indican to appear in the urine, while prolonged handling of the intestines did cause excessive indican in the urine.

These findings offer the quasi-experimental evidence for my assertion that the trauma to the intestinal wall with the subsequent inflammatory and functional changes of the latter cause the impairment of the absorptive powers of the mucosa, thereby increasing intestinal putrefaction; an indicator for this increased putrefaction is the amount of indican excreted in the urine. The clinical evidence for my claim is given by the fact that the majority of my chronic appendicitis cases showed excessive amounts of indican in the urine, more especially during the recurrent attacks. The same did all mucous colitis cases. The mucous coating of the colon in these cases inhibits the toxicolytic functions of the mucous membrane, favoring, thus, intestinal putrefaction.

The thought that mechanical trauma to the intestinal wall is sufficient to produce indican was instrumental in my diagnosing four cases of pericholecystitis adhesiva, in which the diagnosis was corroborated by the surgeon. One case was that of a man aged 45, who had suffered almost constantly for twenty years with ill-defined pain-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

ful sensations in the right and upper abdominal region. The examinations of the urine made frequently after such attacks showed always the presence of considerable indican and distinct traces of bile. On further inquiry the patient remembered an icterus he had had about twenty years before. The operator found the suspected adhesions between the right flexure of the colon and the gall-bladder. The severance of these adhesions brought a complete recovery of the patient, who had been considered all his life a neurasthenic only. The very same condition existed in another case, that of a middle-aged woman whose gall-bladder was found completely adherent to the colon. The excision of the gall-bladder effected a cure. Similar pathologic conditions existed in the two remaining cases. In one of them there was also present an adhesive chronic appendicitis. For the explanation of the constant presence of distinct traces of bile during the painful attacks, I merely suggest the kinking of the bile-duct, brought about mechanically by the peristalsis of the colon adherent to the gall-bladder, thus causing a temporary entrance of bile into the circulation.

The same principle of prolonged mechanical trauma to the intestinal wall through coprostasis explains the asthenic condition present in more than 300 cases of enteroptosis I tested repeatedly for indican. While it must be admitted that gastroptosis and enteroptosis are primary conditions, as Glenard and Stiller have proved, it will be easily understood that the "transverse festoons" of the intestines predispose to coprostasis. As long as the latter takes place in the rectum alone—either by its atonic or its spasmodic condition—on account of the dryness of the feces and consequent diminution of the number of bacteria, it will not cause putrefaction. This is proved by the cases of constipation in adults as well as in children, with periods of three to ten days between bowel movements, without the appearance of any of the phenomena of putrefaction, including no indican in their urine. If the coprostasis, however, takes place in the cecum or ascending colon, where there is not yet dryness of feces, but humidity and often alkaline reaction, the most favorable conditions for exaggerated putrefaction are created. The toxins, ammonia compounds and sulphuretted hydrogen, which then enter the portal vein from the intestinal tract, destroy red blood-cells in the portal system. The hemoglobin thus liberated is carried into the liver where it is found deposited in the hepatic cells as blackish granules, containing iron from the blood pigment. Thus we could find in almost all cases of enteroptosis anemias of about 70 per cent. (Sahli) and 4,500,000 red blood corpuscles. By applying a well-fitting abdominal supporter to these patients, rendering better defecation possible and at the same time fattening them, most of these patients became free of indican and attained normal blood again.

Quite conspicuous was the constant finding of indican in those cases of constipation, which were complicated by cardiac insufficiency. This latter must needs produce an insufficiency of digestive juices which can explain the formation of enterotoxins from the undigested residua attacked by bacteria. The same explanation holds true in all the accidental indicanuria cases, including febrile diseases, cachexias, nervous diseases (tabes, cerebral tumors, meningitis).

Schmidt's "intestinal dyspepsia"—a functional disease of the small bowel, in which the carbohydrates are not utilized—is very rare. In many hundreds of stool examinations I have found only a few instances in which exaggerated fermentation was obtained in the first twenty-four hours in Schmidt's apparatus. In none of these cases was there any indican present in the urine.

Among the chief emunctories for those products of intestinal putrefaction which are circulating in the blood (like indoxyl, skatoxyl, phenol, leukomains, etc.) rank the kidneys. Any renal insufficiency therefore should—according to Combe's opinion—lead to a retention of the above mentioned products, i. e., "auto-intoxication." It is noteworthy that in a few thousand of indican tests made on patients with acute and chronic diffuse nephritis, pyelonephritis, tuberculosis of the kidneys, indican was found relatively rarely, and there were hardly any symptoms of the much-dreaded "auto-intoxication" present. Interesting in this respect was the case of a young woman with pyuria, due to a tuberculous abscess in the left kidney. For many weeks prior to the excision of the left kidney her urine never showed any trace of indican; since the removal of her diseased kidney, however, the urine—though practically free of pus—shows constantly considerable amounts of indican, while the woman herself feels perfectly well in every respect.

The liver is credited with the exercise of a powerful toxicolytic function against the enterotoxins entering the same through the portal vein. Diseases of the liver cells, should favor intestinal putrefaction, thus increasing the aromatic bodies in the urine. About a hundred cases of liver diseases like hypertrophy, cirrhosis, syphilis of liver, cholangeitis, and carcinoma hepatis were studied in regard to their relation to indican excretion. I have come to the conclusion that indicanuria exists only in extreme hepatic insufficiency, when the latter is indicated not only by the decrease of urea in the urine—"hypo-azoturia"—but by the simultaneous presence of leucin and tyrosin in the same. While a marked increase in the sulpho-ethers and aromatic bodies always indicates auto-intoxication to a certainty, its hepatogenous origin should be asserted only by considering the amount of urea and leucin in the urine at the same time; for we know that urea is formed in the liver from the amino-acids and ammonia carried into it through the portal vein from the intestines; and uric acid is similarly formed in the liver from the nucleins and xanthic bases. Hepatic insufficiency, therefore, implies decrease in urea and uric acid. If urea was not decreased, we should have to think of some other origin for the auto-intoxication. If, however, in addition to a decrease of urea I found that 150 gm. of glucose produced alimentary glycosuria, my assumption of a general hepatic insufficiency would be strengthened. Thus I could see —though rarely—"auto-intoxication" brought about through hepatic insufficiency in cases of normally functionating intestines.

Normal gastric juice is supposed, under normal conditions, to either destroy or at least diminish the number of bacteria which cause putrefaction. In more than five hundred examinations of the gastric contents I found that hyperacidity quite frequently was coupled with indicanuria. If there was simultaneously present ulcer of the stomach or duodenum, indicanuria was always present. Hyperacidity coupled with indicanuria indicates an extragastric lesion, like chronic cholecystitis or appendicitis, provided ulcer of stomach or duodenum can be excluded. More than twenty laparotomies corroborate thus the value of indicanuria for the differential

diagnosis between gastric and extragastric lesions. Cases of anacidity and hypacidity showed indicanuria only in half their total number. Whenever these conditions were accompanied, however, by carcinoma ventriculi, indicanuria was always present.

The insufficiency of pancreatic juice (the tryptic action of which neutralizes many toxins) with its consecutive increase of intestinal putrefaction was shown in two cases of carcinoma of the pancreas with ever-present excessive indican.

Bile insufficiency is supposed to cause intestinal putrefaction, partially owing to the absence of the antitoxic action of taurocholic acid, partially because it leaves a larger alimentary residua for the bacteria to prey on. About fifty cases of icterus, with complete occlusion of the common duct, caused either by gall-stones or catarrhal icterus, showed indicanuria in but ten cases. Among these fifty cases there were three, in which all the bile was draining through a cholecystostomy wound, with absolutely acholic stools. There was no indican in spite of the much-spoken-of "bile insufficiency."

Conspicuous was the indicanuria in several cases of ozena and caries of the teeth in patients who exhibited no other signs of pathologic condition. Evidently the patients swallowed in their sleep more or less virulent pus which furnished the source of intestinal infection and putrefaction, the stomach being empty and not containing any hydrochloric acid.

I have endeavored to remove this indicanuria, which I have considered for these four years as only an indicator of intestinal putrefaction, by all means advocated heretofore: I have placed my patients on a vegetarian diet, mixed diet, proteid diet, lactofarinaceous diet. There appeared, however, no perceptible change in the excretion of indican in any one of the twenty cases of "intestinal auto-intoxication," I observed. I administered gelatin, lactic acid culture tablets, chologestin, calomel, menthol, ichthoform, ichthalbin, benzonapthol, ichthyol, hydrochloric acid—without avail. I combined oil injections simultaneously with this internal and dietary treatment, and in another series of cases salicylic acid irrigations of the colon—all with no success whatever. I imported and used in many instances Metchnikoff's lactobacillin, with not the slightest reduction of indican in the urine. I used all makes of lactic tablets with which any manufacturer could supply me—but the "commercially so well-advocated antiputrefactive action exercised by lactic ferments, when applied to the treatment of intestinal disorders" proved a complete failure! Not the slightest influence on the excretion of indican in the urine could be seen from any of these preparations. At last I resorted to high enemas of 1 per cent. ichthyol with the patient in knee-chest position. I think the case in which I first applied the latter noteworthy enough to be reported.

A man aged 72 with pernicious anemia (the blood-picture showing poikilocytes, megalocytes and megaloblasts, the hemoglobin 30 per cent. (Sahli), red blood corpuscles 2,700,000) showed excessive indican for two weeks previous to the treatment. The physical examination of the body, and the examination of the feces, and of the urine revealed nothing further. The patient was put on lactofarinaceous diet, combined with daily high colonic lavage with 1 per cent. ichthyol. The indican disappeared from the urine, and the blood increased in the course of four weeks from 30 to 65 per cent. (Sahli). The megaloblasts disappeared from the blood. The patient is at present much improved.

Startled by the efficiency of ichthyol irrigations, I advised the same treatment for another patient, a middle-aged woman with depressive neurasthenia symptoms, with no other clinical symptom but persistent indicanuria. The indican disappeared, and the patient's whole mental attitude at the same time brightened conspicuously.

While I am aware that two cases are not sufficient to allow of any further general deductions for the therapy of this rare disease "intestinal auto-intoxication" I thought them noteworthy enough—in view of my numerous therapeutic disappointments in the treatment of that disease—to report.

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ABSTRACT OF DISCUSSION

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: I had a case of pernicious anemia in which the injections were used as described by Dr. Baar, with only slight temporary improvement. The patient finally died. Although the injections were used for a long time, indican did not disappear from the urine. I do not agree that these patients with pernicious anemia can be cured, when these large quantities of indican appear in the urine, by washing out the bowels with these ichthyol injections. I think, however, that Dr. Baar's general observations are true. Indican is present in the urine in a large percentage of these cases, but it is not necessarily due to intestinal putrefaction. We certainly do not get relief by the employment of lactic acid bacilli used in any way, as in buttermilk, or lactic acid tablets.

DR. JUDSON DALAND, Philadelphia: As already stated, indican is non-toxic; but inasmuch as materials are manufactured during the process of putrefaction which are toxic, and as indican is an indication of their production, the presence of this substance in the urine may be of some value to us.

So far as pernicious anemia and the type of blood picture referred to is concerned, I also have had an interesting case. This experience was with a child about 12 months of age, who presented a persistent and excessive indicanuria. The colon was irrigated with normal saline solution, and this was followed by a rapid recovery. In this case certain materials remained in the blood and were active until destroyed, and we were able to recover from the urine cadaverin and putrescin. I believe that where there is an indicanuria which will not yield to treatment, often we will find tuberculous ulceration of the intestine, and also that any interference with the integrity of the intestinal canal will bring about indicanuria. Of course, the extent of the intoxication is exceedingly variable. I think the suggestion made as to the treatment of these cases is a valuable one; thorough and complete irrigation of the colon with normal saline solution should prove to be very efficient.

DR. JAY I. DURAND, Atlantic City, N. J.: During the last four years I have examined 5,000 specimens of urine, making the indican test as a routine measure. I have found indican, in definite amounts, in at least two-thirds of the specimens; if we accept the teachings that any trace of indican is pathologic, then at least two-thirds of the cases were pathologic. I agree with Dr. Baar regarding the difficulty in removing the excess of indican in a large number of cases. There are many cases in which I have been unable permanently to reduce the quantity; I have used Metchnikoff's bacilli, in many preparations, and have never been able to convince myself that they had a marked effect on the indicanuria. It seems to me that, if Metchnikoff's theory were to be substantiated, the indican should be profoundly affected by the use of the bacilli.

DR. C. SHATTINGER, St. Louis: I should like to make a report of a case recently under my observation. This case was, and still is, a puzzle to me so far as a correct interpretation of the symptoms is concerned. The patient was a boy of 18 years and he had been ill for 2 years. The symptoms were somewhat vague—mainly abdominal pain and progressive emaciation. He had had an appendectomy, and had made a

good recovery from the operation, but improved slowly. He afterward lapsed back again and the emaciation became extreme. When he came under my observation his weight was 79 pounds and he looked like a candidate for death from tuberculosis. The suspicion of a tuberculous lesion in the intestine was strong. The feces were examined for tubercle bacilli, but none were found. The von Pirquet test was twice negative. The blood was carefully examined. Except for a reduction of about 20 per cent. in hemoblobin the blood was found to be normal. All the organs were examined carefully, and with negative results. Examination of the urine showed it to be normal, except for the presence of indican in what would be called considerable quantities. I took that as a clue and an endeavor was made to remove the indicanuria. I have had a similar experience as Dr. Durand in the use of the different medicinal agents and the bacillary preparations. I used all, but without avail. In the want of better indications I fell back on what seemed to be common sense view of the indications. I wanted to improve the nutritive condition of this patient, and so I fed him to the utmost. I felt that he should derive benefit from the employment of hydro-electric baths, viz., sinusoidal baths, to stimulate metabolism. By using hydrotherapeutic measures, tonics, salines and carefully selecting the diet, I found it was possible after 7 months to bring his weight up to 132 pounds and apparently to make him a strong and healthy individual. But he still has indicanuria.

DR. GUSTAV BAAR, Portland, Ore.: Intestinal toxemia is a very uncommon disease; among 3,000 cases examined there were only about twenty in which I could not find the cause for the constant presence of excessive indican in the urine. Where there was a renal, gastric or liver insufficiency I have not called such cases "intestinal" toxemia. I want to avoid the expression auto-intoxication; this is a term that should be avoided, as should the term malaria. I noticed that those who took part in the discussion agreed that the lactic acid tablets show no influence on the excretions of indican. If we need any such nostrums let us have something that is less expensive than these lactic acid tablets. Here is another point: the excessive secretion of indican in the urine occurs in cases of hyperacidity; this is something of diagnostic value. Cases of hyperacidity point more to the neurotic conditions, or ulcer of the stomach; cases of hyperacidity associated with persistent indicanuria, however, point to extragastric lesions (gall-stones or appendicitis), and they belong to the surgeon.

THE COMPARATIVE EFFICIENCY OF SOME COMMON GERMICIDES

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In the case of an obstinate gonorrheal arthritis in a hospital, the advisability of injecting argyrol into the joint arose and the question was asked, What is the germicidal power of this preparation? The literature seemed indefinite and various in its answers and tests were accordingly made. The results were so unexpected and so much at variance with the prevalent opinion that the tests were repeated and extended to protargol, and silver nitrate, and from these to a considerable number of germicides in ordinary use for clinical purposes in a large well-regulated hospital. As a consequence of the evidence produced, many solutions previously in use in that hospital have been discarded and in their place more effective ones substituted. Because of the daily interest of clinicians, as well as the importance of the subject to patients, a summary of these investigations is here presented.

The development of methods for testing the efficiency of germicidal solutions affords us practical knowledge as well as historical interest. From 1750 to 1881 the most extensive experiments were concerned with the value of different substances to hinder putrefaction in such media as infusion of tobacco leaves, meat broth, and vaccine lymph. Robert Koch, in 1881, was the first to compare the germicidal value of various disinfectants on pure cultures of bacteria. He instituted the so-called "thread method" by marking with emulsions of organisms dried on silk threads. The drawbacks of Koch's method are, first, that the organisms are dried, and, second, that a certain amount of the disinfectant is carried with the thread and continues to act on the organisms after being removed from the disinfecting solution. It is in part owing to these drawbacks that various workers reported the high germicidal power of mercuric chlorid, creolin, the cresols and higher phenols.

Krönig and Paul (1897) devised the "garnet method," by which emulsions of organisms were dried on garnets. These garnets were immersed in the solution of the disinfectant, and the disinfectant carried over was gently removed by washing. These workers were the first to emphasize the importance of:

1. Constancy of number and species of bacterium used.
2. Constancy of temperature.
3. Constancy of nutrient media for test cultures.
4. Absence of other organic matter.

In 1903 Rideal and Walker published their "drop method," by which a definite small amount of a broth-culture of constant species and age was added to a constant volume of disinfectant solution. In the opinion of many this method suffers from the disadvantage that whereas, in the majority of cases of practical disinfection, organic matter of some sort is present, there is no attempt to realize this condition during standardization. To overcome this objection modifications of the Rideal-Walker method have been described and may be found well discussed in a comprehensive paper by Chick and Martin.[1]

The method by which the following results were obtained may be briefly described:

Half a cubic centimeter of the solution to be tested was placed in a small test-tube. Into this solution was placed one platinum loopful of an emulsion (in culture broth) of a twenty-four-hour culture (on blood-agar slant) of the organism used. After one minute, ten minutes, thirty minutes, and twenty hours, a loopful of contaminated test solution was thoroughly mixed into a tube of blood-agar and plated in the ordinary sterile petri dishes. These were incubated at 37 C. and observed after twenty-four, forty-eight, and seventy-two hours. In the case of large numbers of colonies the figures are approximate, and if the number of colonies was too great to permit of approximate estimation, the sign of infinity (∞) was used. The streptococcus was obtained by blood-culture from a case of puerperal septicemia; the pneumococcus from blood-cultures in a case of typical lobar pneumonia; the gonococcus was isolated from a urethral discharge; the *Bacillus typhosus* was obtained directly from blood-cultures. All of the organisms were grown only on blood-agar after being obtained.

Objections to this method will be raised: first, the emulsions of the various organisms were not standardized to represent a uniform number of bacteria per cubic

1. Chick, H., and Martin, C. J.: Standardization of Disinfectants Jour. Hyg., London, November, 1908, viii, No. 5.

millimeter; second, by immersing the bacteria directly in the disinfecting solution a condition is obtained which is more favorable to the destruction of bacteria than is found in ordinary clinical conditions; third, errors may arise from accidentally striking the platinum loop on the side of the test-tube, leaving some of the bacteria outside of the solution and later picking them up when inoculating the blood-agar plates; and fourth, the intervals between the different times of exposure may be too long for minute comparison of effects of the various disinfectants. To the first and third of these objections we find the practical answer in the uniformity and consistency of the results in a series of tests necessitating nearly 2,000 different inoculations. To the second objection it is not necessary to say that if the solutions are not effective against bacteria immersed directly into them they are far less likely to be effective against bacteria in the presence of protective substances such as blood, serum, mucus, etc. To the fourth, we wish to say that the chief purpose of these tests was to obtain a broad guide in the choice of disinfectants in those conditions demanding effectiveness in a brief time, such as cleansing wounds, fields of operation, instruments, etc. Attention is also called to the possibility that on account of the thorough mixing of the bacteria in the blood-agar the action of the germicidal solution was promptly checked. At the same time their growth and detection is enhanced. This latter is especially emphasized in the case of the streptococcus with its hemolytic powers, which makes detection of organisms living in the blood-agar plate very easy. The various drugs were obtained as the best in the open market and were such as are used widely by the profession. The accompanying tables show our results:

TABLE 1.—SILVER PREPARATIONS

Solution.	Organism	Number of Colonies in one loopful of test solution after: 1 min.	10 min.	30 min.	20 hrs.
Argyrol .....50 %	Strep. ...	∞	300	0	...
		∞	300	0	...
Argyrol .....50 %	Gon.	3,000	3,000	2,000	0
		∞	1,000	100	...
Argyrol .....50 %	Pneum. .	∞	2,000	200	...
		8,000	2	0	0
	B. typh..	0	0	0	0
Argyrol .....10 %	Strep. ...	∞	200	11	...
		∞	500	50	...
Argyrol .....10 %	Gon.	2,000	2,000	0	0
		2,000	500	25	...
Argyrol .....10 %	Pneum. .	∞	1,000	7	0
		3,000	200	0	0
Argyrol .....10 %	B. typh..	0	0	0	0
Protargol 10%	Strep. ...	600	5	0	...
		0	0	0	...
Protargol 10%	Gon.	200	0	0	...
		600	60	0	0
Protargol 10%	Pneum. .	0	0	0	0
		1,000	40	1	...
Protargol .....10 %					
Silver nitrate... 1 %	Strep. ...	0	0	0	...
Silver nitrate... 1 %	Gon.	0	0	0	...
		0	0	0	0
Silver nitrate... 1 %	Pneum. .	0	0	0	...
		0	0	0	0
Silver nitrate... 1 %	B. typh..	0	0	0	0
Silver nitrate 1-1000	Strep. ...	0	0	0	...
Silver nitrate 1-1000	Gon. ...	0	0	0	0
		0	0	0	...
Silver nitrate 1-1000	Pneum. .	0	0	0	0
		20	0	0	0
Silver nitrate 1-1000	B. typh..	500	0	0	0
Silver nitrate 1-5000	Strep. ...	1	0	0	...
		11	0	0	...
Silver nitrate 1-5000	Gon. ...	0	0	0	...
		0	0	0	0
Silver nitrate 1-5000	Pneum. .	50	0	0	...
		1,000	1	0	0
Silver nitrate 1-5000	B. typh..	∞	1,000	0	0
Silver nitrate 1-10,000	Strep. ..	2,000	1,500	0	0
Silver nitrate 1-10,000	Gon. ...	100	0	0	0
Silver nitrate 1-10,000	Pneum. .	6,000	6,000	800	0
Silver nitrate 1-10,000	B. typh..	5,000	10	0	0

Table 1 shows the results which were so unexpected that they led to further tests. We see that 10 per cent. and even 50 per cent. argyrol, and 10 per cent. protargol failed to kill the gonococcus, streptococcus or pneumococcus after they had been exposed directly to the fluid for one-half hour. At the same time it is seen that silver nitrate even in a dilution of 1 to 5,000 was much more effective. These results were not all obtained at one time but represent the compiled results of tests made at different times and with disinfecting solutions made up at different times. The uniformity of results is striking.

In therapeutics, then one should keep in mind that argyrol and protargol are expensive and not so active in concentrated solutions as the ordinary silver nitrate in 1 to 5,000, or even 1 to 10,000 solution, which costs almost nothing. The action on the typhoid bacillus is more favorable for the argyrol and protargol and less favorable for high dilutions of silver nitrates.

TABLE 2.—SOLUTIONS OF MERCURIAL SALTS

Test Solution	Test Organism	Number of Colonies in one loopful of test solution after: 1 min.	10 min.	30 min.	20 hrs.
Chlorid 1 to 500 (From Bernay's tablets)	Strep. ..	2,000	80	0	0
	Gon. ...	3,000	20	1	0
	Pneum. .	3,000	2,000	0	0
	B. typh..	0	0	0	0
Chlorid 1 to 2,000 (From Bernay's tablets)	Strep. ..	5,000	2,000	2,000	0
	Gon. ...	4,000	3,000	200	0
	Pneum. .	3,000	3,000	5,000	0
	B. typh..	0	0	0	0
Chlorid 1 to 10,000 (From Bernay's tablets)	Strep. ..	10,000	200	10	0
	Gon. ...	4,000	500	25	0
	Pneum. .	7,000	3,000	1,500	0
	B. typh..	200	75	0	0
Biniodid of mercury.1	Strep. ..	10	1	0	0
Potassium iodid....1	Gon. ...	0	0	0	0
Sod. bicarb.....20	Pneum. .	∞	10,000	4,000	0
Water 1,000	B. typh..	0	0	0	0
P., D. & Co. ("Germicidal Discs").					
Biniodid of mercury.1	Strep. ..	5	0	0	0
Potassium iodid....1	Gon. ...	0	0	0	0
Sod. bicarb.....20	Pneum. .	8,000	3,000	10	0
Water 2,000	B. typh..	25	2	0	0
Biniodid of mercury.1	Strep. ..	3,000	5,000	3,000	0
Potassium iodid....1	Gon. ...	∞	∞	∞	0
Sod. bicarb.....50	Pneum. .	∞	∞	∞	0
Water 5,000	B. typh..	20	50	*	0

* Broken.

The important lesson from the tests with solutions of the mercury salts is that the action is slow, but that it is effective even in high dilutions. The solutions of bichlorid of mercury were made up according to directions from Bernay's tablets, because these are so widely used by the profession. Organisms immersed in a 1 to 500 solution were still living in large numbers at the end of ten minutes and one colony of gonococcus was obtained after thirty minutes. In 1 to 2,000 solution there was almost no apparent effect in thirty minutes, although disinfection was complete after twenty hours. Contrary to a prevalent opinion, then solutions of bichlorid of mercury made up from Bernay's tablets are absolutely ineffective where prompt disinfection is required, as in the disinfection of hands and fields of operation.

The combination of the biniodid of mercury, potassium iodid and sodium bicarbonate are sold by Parke, Davis & Co., under the name of "germicidal discs." The following claims are made for the preparation: A 1-to-5,000 solution is as effective as a 1-to-1,000 solution of bichlorid of mercury. Coagulation of tissues at the site of application is prevented. It causes less irritation and in proper dilutions instruments are not injured by it. The first claim seems to be approximately

confirmed since the 1-to-2,000 solution is as effective as the 1-to-500 bichlorid. It is possible that the increased efficiency of this preparation over bichlorid may be due in part to the increase of iodin in solution. Attention is directed to the efficiency of iodin solutions. In general, however, it is seen that with the biniodid solution too, the time is needed to make sure of complete disinfection; and in the dilution of 1 to 5,000 the effect is not appreciable after thirty minutes, although disinfection is complete after twenty hours. In the case of the mercurial salts, the typhoid bacillus again seems to be more easily destroyed than the streptococcus, gonococcus, or pneumococcus.

TABLE 3.—PHENOLS

Solution.	Organism.	Number of Colonies in one loopful of test solution after exposure: 1 min.	10 min.	30 min.	20 hrs.
Creolin .....100 %	Strep. ...	0	0	0	...
Creolin .....100 %	Gon. ...	0	0	0	0
Creolin .....100 %	Pneum. .	0	0	0	0
Creolin .....100 %	B. typh..	0	0	0	0
Creolin ..... 1 %	Strep. ...	0	0	0	0
Creolin ..... 1 %	Gon. ...	25	0	0	0
Creolin ..... 1 %	Pneum .	300	50	0	0
Creolin ..... 1 %	B. typh..	1	0	0	0
Creolin ..... 75 %	Strep. ...	0	0	0	0
Glycerin ..... 25 %	Gon. ...	0	0	0	0
	Pneum. .	0	0	0	0
	B. typh..	0	0	0	0
Kreso .....100 %	Strep. ...	0	0	0	0
Kreso .....100 %	Gon. ...	0	0	0	0
Kreso .....100 %	Pneum. .	0	0	0	0
Kreso .....100 %	B. typh..	0	0	0	0
Kreso ..... 5 %	Strep. ...	0	0	0	0
Kreso ..... 5 %	Gon. ...	0	0	0	0
Kreso ..... 5 %	Pneum. .	0	0	0	0
Kreso ..... 5 %	B. typh..	0	0	0	0
Kreso ..... 1 %	Strep. ...	0	0	0	0
Kreso ..... 1 %	Gon. ...	0	0	0	0
Kreso ..... 1 %	Pneum. .	0	0	0	0
Kreso ..... 1 %	B. typh..	0	0	0	0
Kreso 1-1000	Strep. ...	∞	800	200	0
Kreso 1-1000	Gon. ...	5,000	4,000	2,000	300
Kreso 1-1000	Pneum. .	4,000	4,000	2,000	1,000
Kreso 1-1000	B. typh..	∞	∞	∞	∞
Kreso .....50 %	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. .	0	0	0	0
Glycerin .....50 %	B. typh..	0	0	0	0
Chinosol .....25 %	Strep. ...	∞	∞	∞	...
		∞	500	0	0
Chinosol .....25 %	Gon.	2,000	0	0	...
		∞	∞	∞	0
Chinosol .....25 %	Pneum. .	∞	∞	∞	0
		4,000	0	0	0
Chinosol .....25 %	B. typh..	3,000	500	60	0
Chinosol .....0.4 %	Strep. ...	∞	∞	∞	...
Chinosol .....0.4 %	Gon. ...	6,000	6,000	4,000	3,000
Chinosol .....0.4 %	Pneum. .	10,000	8,000	8,000	3,000
Chinosol .....0.4 %	B. typh..	∞	∞	∞	∞
Chinosol 1-10,000	Strep. ...	∞	∞	20,000	10,000
Chinosol 1-10,000	Gon. ...	5,000	5,000	3,000	3,000
Chinosol 1-10,000	Pneum. .	6,000	5,000	4,000	2,000
Chinosol 1-10,000	B. typh..	∞	∞	∞	∞
Chinosol ..... 6 %	Strep. ...	∞	∞	20,000	0
Glycerin ..... 13 %	Gon.	∞	500	60	...
		2,000	2,000	0	0
Water .....128 %	Pneum. .	∞	∞	∞	...
		4,000	4,000	3,000	1,000
	B. typh..	∞	∞	∞	200
Lysol .....100 %	Strep. ...	0	0	0	...
Lysol .....100 %	Gon. ...	0	0	0	0
Lysol .....100 %	Pneum. .	0	0	0	0
Lysol .....100 %	B. typh..	0	0	0	0
Lysol .....1.5 %	Strep. ...	0	0	0	...
Lysol .....1.5 %	Gon.	0	0	0	...
		0	0	0	0
Lysol .....1.5 %	Pneum. .	400	3	0	...
		30	200	0	0
	B. typh..	10,000	0	0	0
Lysol 1-1,000	Strep. ...	∞	500	12	0
Lysol 1-1,000	Gon. ...	500	1,000	1,000	50
Lysol 1-1,000	Pneum. .	6,000	4,000	4,000	0
Lysol 1-1,000	B. typh..	∞	∞	∞	∞
Trikresol .....1 %	Strep. ...	0	0	0	0
Trikresol .....1 %	Gon.	0	0	0	10
Trikresol .....1 %	Pneum. .	0	0	0	0
Trikresol .....1 %	B. typh..	0	0	0	0
Trikresol .....0.3 %	Strep. ...	4,000	4,000	4,000	0
Trikresol .....0.3 %	Gon. ...	2,000	2,000	1,000	50
Trikresol .....0.3 %	Pneum. .	10,000	10,000	10,000	0
Trikresol .....0.3 %	B. typh..	2,000	500	5	0
Phenol .....5 %	Strep. ...	0	0	0	0
Phenol .....5 %	Gon. ...	0	0	0	0
Phenol .....5 %	Pneum. .	0	0	0	0
Phenol .....5 %	B. typh..	0	0	0	0
Phenol .....1 %	Strep. ...	∞	∞	500	0
Phenol .....1 %	Gon. ...	4,000	500	0	0
Phenol .....1 %	Pneum. .	8,000	8,000	4,000	0
Phenol .....1 %	B. typh..	6,000	3,000	1,000	2
Phenol 1-1,000	Strep. ...	∞	∞	5,000	2,000
Phenol 1-1,000	Gon. ...	6,000	6,000	4,000	3,000
Phenol 1-1,000	Pneum. .	6,000	6,000	6,000	0
Phenol 1-1,000	B. typh..	∞	∞	∞	∞
Phenol .....50 %	Strep. ...	0	0	0	0
Glycerin .....50 %	Gon. ...	0	0	0	0
	Pneum. .	0	0	0	0
	B. typh..	0	0	0	0
Phenol 3i	Strep. ...	0	0	0	0
Zinc sulphate.....3ii	Gon. ...	0	0	0	0
Glycerin 3ii	Pneum. .	0	0	0	0
Water, q. s., ad..3viii	B. typh..	0	0	0	0

Among the various phenol preparations tested kreso and trikresol in 1 per cent. solution killed all organisms in less than one minute. A 0.3 per cent. solution of the latter, which was formerly used in antitoxin serum, had no appreciable effect in thirty minutes but killed all organisms, except the gonococci, in twenty hours. Creolin in 1 per cent. solution was somewhat less effective, lysol still less, and phenol much less effective. Five per cent. solution of phenol, however, kills all organisms in less than one minute. The combination of phenol, zinc sulphate, glycerin and water was tested because it is in use as a gargle in the hospital where these tests were being carried out. When used as a gargle it is diluted to three or four times its given volume. The most striking results in this group were obtained from chinosol, which had very little effect even in the undiluted commercial form (25 per cent.) when organisms were exposed to it for thirty minutes. After twenty hours, however, no living organisms were found in it. The other solutions given in the table were in use in the hospital and the results show their inefficiency as germicides. An economic point is worth mentioning since kreso may be bought for about 80 cents a gallon and lysol costs between $3 and $4. The former is, however, not so refined and not so easily miscible with water, while it is considerably more efficient.

TABLE 4.—SOLUTIONS OF IODIN

Solution.	Organism	Number of Colonies in one loopful of test solution after exposure: 1 min.	10 min.	30 min.	20 hrs.
Iodin 1	Strep. ...	0	0	0	0
Potassium iodid.. 1	Gon. ...	0	0	0	0
Water 100	Pneum. .	0	0	0	0
("Senn's solution")	B. typh..	0	0	0	0
Iodin 1	Strep. ...	0	0	0	0
Potassium iodid.. 1	Gon. ...	0	0	0	0
Water 400	Pneum. .	0	0	0	0
	B. typh..	0	0	0	0
Tincture of iodin....	Strep. ...	0	0	0	0
Tincture of iodin....	Gon. ...	0	0	0	0
Tincture of iodin....	Pneum. .	0	0	0	0
Tincture of iodin....	B. typh..	0	0	0	0

The solutions of iodin (Table 4) were tested, the first two in the table being those warmly advocated by the late Professor Senn, and called, locally at least, the Senn solutions. Both of these, as well as the tincture of iodin, killed all organisms in less than one minute.

To what extent these may be diluted and still be effective was not determined. The weaker solution is extensively used by some in irrigating wounds, both on account of its germicidal power and its stimulating effect in producing granulations.

TABLE 5.—SOLUTIONS OF LIQUOR FORMALDEHYDI

Solution.	Organism	Number of Colonies in one loopful of test solution after: 1 min.	10 min.	30 min.	20 hrs.
Liquor formaldehydi (U. S. P.)	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. .	0	0	0	0
	B. typh..	0	0	0	0
Liquor formaldehydi 1%	Strep. ...	10,000	2,000	500	0
	Gon. ...	4,000	2,000	1,000	0
	Pneum. .	5,000	3,000	200	0
	B. typh..	∞	4,000	50	0
Liquor formaldehydi 1 to 1,000	Strep. ...	10,000	10,000	2,000	0
	Gon. ...	6,000	6,000	6,000	0
	Pneum. .	4,000	4,000	4,000	0
	B. typh..	4,000	4,000	3,000	0
Liquor formaldehydi 1 to 10,000	Strep. ...	10,000	10,000	10,000	1,000
	Gon. ...	4,000	4,000	5,000	2,000
	Pneum. .	5,000	5,000	5,000	2,000
	B. typh..	∞	10,000	8,000	2,000
Liquor formaldehydi 2% Glycerin 98%	Strep. ...	∞	∞	10,000	0
	Gon. ...	10,000	10,000	4,000	0
	Pneum. .	10,000	8,000	6,000	200
	B. typh..	10,000	50	0	0

Liquor formaldehydi (Table 5) also afforded unexpected results because of the slowness of its action in a solution as strong as 1 per cent., which did not completely kill in thirty minutes, and because the 2 per cent. formalin in glycerin acted more slowly than 1 per cent. aqueous solution. In the former 200 pneumococci in 1 loopful of test solution were still living after twenty hours. The solution in glycerin is of the strength frequently injected into infected joints.

TABLE 6.—SOLUTIONS OF ALCOHOL

Solution.	Organism	Number of Colonies in one loopful of test solution after: 1 min.	10 min.	30 min.	20 hrs.
Alcohol ..... 1 %	Strep. ...	400	300	300	100
Alcohol ..... 1 %	Gon. ...	300	300	300	2,000
Alcohol ..... 1 %	Pneum. .	∞	∞	∞	∞
Alcohol ..... 1 %	B. typh..	6,000	3,000	500	3,000
Alcohol ..... 5 %	Strep. ...	300	300	200	0
Alcohol ..... 5 %	Gon. ...	500	300	10	20
Alcohol ..... 5 %	Pneum. .	10,000	10,000	10,000	5,000
Alcohol ..... 5 %	B. typh..	2,000	2,000	2,000	2,000
Alcohol .....10 %	Strep. ...	300	300	400	0
Alcohol .....10 %	Gon. ...	200	4	0	0
Alcohol .....10 %	Pneum. .	10,000	10,000	10,000	6,000
Alcohol .....10 %	B. typh..	8,000	8,000	3,000	3,000
Alcohol .....20 %	Strep. ...	300	200	3	0
Alcohol .....20 %	Gon. ...	300	0	0	0
Alcohol .....20 %	Pneum. .	8,000	8,000	8,000	4,000
Alcohol .....20 %	B. typh..	4,000	6,000	2,000	1,000
Alcohol .....30 %	Strep. ...	25	0	0	0
Alcohol .....30 %	Gon. ...	0	0	0	0
Alcohol .....30 %	Pneum. .	2,000	2,000	1	0
Alcohol .....30 %	B. typh..	300	0	0	0
Alcohol .....50 %	Strep. ...	0	0	0	0
Alcohol .....50 %	Gon. ...	0	0	0	0
Alcohol .....50 %	B. typh..	0	0	0	0
Alcohol .....70 %	Strep. ...	0	0	0	0
Alcohol .....70 %	Gon. ...	0	0	0	0
Alcohol .....70 %	Pneum. .	0	0	0	0
Alcohol .....70 %	B. typh..	0	0	0	0

Alcohol (Table 6) seemed to kill the gonococcus more readily than the other test organisms; a 20 per cent. solution killed all gonococci in less than ten minutes. With the exception of one single colony of pneumococcus, cultures from 30 per cent. alcohol were entirely negative after thirty minutes. Alcohol in 50 per cent. and 70 per cent. solution killed all organisms in less than one minute. Many methods of disinfecting hands or fields of operation may owe their good results largely to the use of alcohol at some time in the process.

TABLE 7.—MISCELLANEOUS SOLUTIONS

Solution.	Organism	Number of Colonies in one loopful of test solution after: 1 min.	10 min.	30 min.	20 hrs.
Tincture of green soap.	Strep. ...	0	0	0	0
Tincture of green soap.	Gon. ...	0	0	0	0
Tincture of green soap.	Pneum. .	0	0	0	0
Tincture of green soap.	B. typh..	0	0	0	0
Chloroform	Strep. ...	0	0	0	0
Chloroform	Gon. ...	0	0	0	0
Chloroform	Pneum. .	0	0	0	0
Chloroform	B. typh..	0	0	0	0
Ether	Gon. ...	0	0	0	0
Ether	Strep. ...	0	0	0	0
Ether	Pneum. .	200	0	0	0
Ether	B. typh..	0	0	0	0
Hydrogen peroxid....	Strep. ...	200	0	0	0
Hydrogen peroxid....	Gon.	1,000	0	0	0
Hydrogen peroxid....	Pneum. ..	2,000	0	0	0
Hydrogen peroxid....	B. typh...	0	0	0	0
Thiersch's solution...	Strep. ...	0	0	0	0
Thiersch's solution...	Gon. ...	0	0	0	0
Thiersch's solution...	Pneum. .	5,000	10	0	0
Thiersch's solution...	B. typh..	10,000	0	0	0
		0	0	0	0
Potassium Permanganate 1 to 1,000	Strep. ...	∞	0	0	0
Potassium Permanganate 1 to 1,000	Gon. ...	3,000	200	0	0
Potassium Permanganate 1 to 1,000	Pneum. .	∞	4,000	2,000	0
Potassium Permanganate 1 to 1,000	B. typh..	2,000	0	0	0
Potassium permanganate 1 to 4,000	Strep. ...	∞	100	0	0
Potassium permanganate 1 to 4,000	Gon. ...	3,000	20	0	0
Potassium permanganate 1 to 4,000	Pneum. .	4,000	1,000	500	0
Potassium permanganate 1 to 4,000	B. typh..	4,000	0	0	0
Cupric sulphate..1 %	Strep. ...	∞	10,000	5,000	0
Cupric sulphate..1 %	Gon. ...	4,000	3,000	2,000	0
Cupric sulphate..1 %	Pneum. .	6,000	6,000	4,000	0
Cupric sulphate..1 %	B. typh..	3,000	1,000	1,000	0
Cupric sulphate 1 to 1,000	Strep. ...	10,000	5,000	500	0
	Gon. ...	4,000	4,000	2,000	0
	Pneum. .	6,000	6,000	6,000	0
	B. typh..	2,000	2,000	500	0
Zinc sulphate 1 to 500	Strep. ...	100	200	200	0
	Gon. ...	500	400	*	*
	Pneum. .	∞	∞	∞	10,000
	B. typh..	3,000	2,000	500	0
Boric acid 1 to 18 (saturated sol.)	Strep. ...	∞	10,000	2,000	*
	Gon. ...	3,000	2,000	2,000	0
	Pneum. .	10,000	10,000	5,000	400
	B. typh..	∞	∞	∞	10,000
Potassium chlorate 6.6% (saturated sol.)	Strep. ...	∞	10,000	5,000	300
	Gon. ...	3,000	2,000	2,000	0
	Pneum. .	10,000	10,000	5,000	400
	B. typh..	∞	∞	∞	10,000
Glycerin	Strep. ...	2,000	1,000	1,000	*
Glycerin	Gon. ...	6,000	6,000	4,000	1,500
Glycerin	Pneum. .	∞	∞	∞	∞
Glycerin	B. typh..	∞	∞	∞	5,000
Distilled water.....	Strep. ...	10,000	10,000	10,000	2,000
Distilled water.....	Gon. ...	4,000	2,000	2,000	2,000
Distilled water.....	Pneum. .	10,000	10,000	10,000	10,000
Distilled water.....	B. typh..	∞	∞	∞	∞

* Broken.

Table 7 includes the results with a miscellaneous lot of solutions which were tested for various reasons. The tincture of green soap showed a very high germicidal power, killing all organisms in less than one minute. This may also be an important factor in various methods for disinfecting hands, etc., and certainly is to be recommended especially when used in conjunction with alcohol. Whether the effectiveness of the tincture of green soap is due to the alcohol in it was not determined.

The hydrogen peroxid (10 per cent. Mallinckrodt) is said to contain 4 parts in 10,000 of acetanilid. This

killed all typhoid bacilli in less than one minute and the other organisms in less than ten minutes.

Thiersch's solution (salicylic acid 2 drams, boric acid 12 drams, and water 1 gallon) was formerly much used in irrigating wounds. The results show it to be a fairly good germicide.

Potassium permanganate was only mildly active in the dilutions used, but even a 1-to 4,000 solution killed the organisms fully as rapidly as a 50 per cent. argyrol solution. Its wide use as an irrigating disinfectant seems, then, to be justified.

Cupric sulphate shows a slight, although distinct effect after thirty minutes and kills entirely in less than twenty hours, in a dilution of 1 to 1,000. This was tested largely because of its use in the dressing of lesions in blastomycosis and actinomycosis.

Boric acid in saturated solution (1 to 18) was only slightly germicidal after twenty hours.

Potassium chlorate in saturated solution (6.6 per cent.) has but little germicidal action, many living organisms still being found in one loopful of it after twenty hours. If, then, it has any special value as a gargle or mouth wash, for which it is so much used in weak solution, it must depend on some other property than its germicidal power.

Glycerin was tested by this method because the question was frequently asked whether other solutions containing glycerin did not owe their activity to the glycerin. The results indicated almost no germicidal power. The same was true with distilled water under like conditions.

TABLE 8.—IMMEDIATE COMPARISON OF RESISTANCE OF STREPTOCOCCUS GROWN ON BLOOD AGAR WITH THAT OF STREPTOCOCCUS GROWN ON PLAIN AGAR FOR FOUR GENERATIONS

Solution.	Media on which culture was grown	Number of Colonies in one loopful of test solution after: 1 min.	10 min.	30 min.	20 hrs.
Silver nitrate 1-5,000	Blood agar	200	50	0	0
	Plain agar	0	0	0	0
Silver nitrate 1-10,000	Blood agar	4,000	40	0	0
	Plain agar	2,000	3	0	0
Liq. formaldehydi 1-1,000	Blood agar	8,000	5,000	3,000	0
	Plain agar	6,000	4,000	2,000	0
Liq. formaldehydi 1-10,000	Blood agar	10,000	6,000	5,000	0
	Plain agar	8,000	3,000	2,000	0

It occurred to us that the apparent slowness of action of some of the reputed germicides might be due to the unusual resistance of the test organisms employed. Consequently the same strains of streptococci and *B. typhosus* were transplanted from their media containing blood, and grown for four generations on plain agar slants. Both organisms were then used in testing fifty-two of the solutions mentioned in the tables. The results were compared with those already given and indicated a moderate lessening of resistance of the organism when grown on plain media and consequently an apparent increase of germicidal power of the various solutions. In order to demonstrate this more conclusively tests were made at the same time, with equal portions of the same test solution and with the same strain of streptococci except that in one case it was grown on blood-agar and in the other on plain agar. The results are shown in Table 8 and indicate a lower resistance on the part of those streptococci grown on plain agar. This factor should be considered in establishing any standard method of testing the efficiency of germicides.

The results establish under these conditions the following points:

1. The reliability of the prompt action of a few simple germicides such as tincture of green soap, alcohol in solutions above 50 per cent., silver nitrate solutions as dilute as 1 to 1,000, the iodin solutions either as the tincture or in aqueous solutions with potassium iodid, phenol in 5 per cent. solution.

2. The unreliability of many agents prevalently supposed to be effective germicides.

3. The slow action of solutions of mercuric chlorid, although when given hours to act it is effective in high dilution.

4. The economic importance in the choice of germicides. This is of special interest to the managers of hospitals since there is great difference in expense between furnishing the much-advertised high-priced (yet less effective) articles in concentrated solutions, and the simple cheaper (yet more efficient) articles in higher dilutions. In one hospital alone, where advantage has been taken of this difference the saving has been several hundreds of dollars a year, and efficiency has been increased at the same time.

We take this opportunity to express the urgent need of a standard method of testing the comparative values of disinfectants. We hope this will be established in the near future by some recognized, suitable authority such as the laboratory of the Marine-Hospital Service at Washington, D. C., or by a committee of the American Medical Association. It will be then less common to find the wide usage of so-called germicides based on advertising literature and other unreliable data. The benefits will be appreciated throughout the profession.

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THE PRINCIPLES OF HYDROTHERAPY *

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It must be confessed that the discussion of the principles of any subject is apt to smack of the didactic and requires some resolution both on the part of the reader and the writer. We are all apt to look askance at principles and to carry the mental attitude, which characterized many of us as students, of preferring "pointers" to "principles." "The Principles and Practice of Medicine" is the title which adorns many text-books; we all grant the importance of the principles, but show more interest in the practice.

Hydrotherapy has suffered from a curious lack of appreciation from the days of Naaman the Syrian down to the present. Perhaps its simplicity and the fact that the remedy lies easily to hand has had something to do with this and many of us need to have the question asked of us: "My father, if the prophet had bid thee do some great thing, wouldst thou not have done it?" The reasons for this neglect are various, one important one being undoubtedly that instruction in hydrotherapy has not received its proper place in medical teaching, a reproach which, however, is rapidly being removed, for which those who have earnestly striven in this matter deserve our thanks. I remember well being impressed

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by the remark made some years ago by an examiner regarding the answers he had received to a question in the paper on treatment, in an examination for the license to practice, which asked for the uses of water as a therapeutic agent. He commented on the almost absolute ignorance of the students on this question. Certainly the majority of us are better informed regarding the principles of digitalis therapy than on the principles of hydrotherapy. Yet we might with advantage use hydrotherapy much more frequently than any special drug therapy. Another reason for the neglect may be that the advantages which are claimed for hydrotherapy sound too good to be true. How many men—without having learned by actual experience—would believe the statement that cold compresses to the chest and throat are the best means of treating acute bronchitis? How many men would believe if they received a special note of advice to that effect printed in an attractive form? Yet a great many are ready to believe any similar bulletin as to the effect of some new drug preparation. The unknown and the new have an attraction for us; the use of water is an old story.

It is not the intention in this article to classify the effects of water or to discuss all its uses, but rather to try and place emphasis on some of the reasons why hydrotherapy is useful. The special effect of certain springs and their particular virtues are not considered, as they hardly belong here. The principles of hydrotherapy may be discussed under three headings which exemplify to a considerable degree the main uses. These are (1) internal hydrotherapy, (2) local hydrotherapy and (3) general hydrotherapy.

INTERNAL HYDROTHERAPY

In this connection the use of water is considered apart from any question of mineral constituents. That is a wider question and we cannot always administer some special water, while *water* itself is always available. It should not be necessary to draw attention to the necessity of being certain that the water which a patient drinks is pure. To have a patient drink contaminated water and so contract typhoid fever would be a serious misfortune. The purposes which may be fulfilled by the internal administration of water are too numerous to go over in detail and certain examples are chosen. When we remember what amount of the body weight is composed of water, the need of it in the daily economy of the body is evident. It is an important agent, both in absorption and in assimilation.

In disease perhaps one of the most marked examples of the benefit of its use is furnished by the acute infections. In these the greatest danger to life lies in toxemia. As a general rule it may be considered that the kidneys are the great eliminating channels of toxins and to cause a large excretion of water by the kidneys is our chief way of aiding this elimination. We are all aware of the importance of the amount of urine as an aid in prognosis in such diseases as typhoid fever and pneumonia. To some extent the greater the amount of urine the less the toxemia. Some would have it that in thus flushing the kidneys we run the risk of injuring them, but this view is held largely on theoretical grounds and lacks proof. Certainly as a clinical question, there is no doubt as to the general opinion. In a disease such as scarlet fever it is the toxins which are responsible for damage to the renal cells and not the fluids. When acute nephritis exists, it is very true that an excessive amount of water may do harm, but the kidney then is unable to excrete water or anything else. In many lesser infections—or so generally regarded—as tonsillitis, for example, the effect of active internal hydrotherapy is marked. Then, again, in another group of cases, the chronic forms of arthritis, which in many cases are apparently of toxic origin of some kind, the influence of the drinking of large amounts of water is usually evident. It is easy to extend the list as, for instance, many of the cases of functional nervous disturbance or of mental disease of certain kinds are greatly helped by large amounts of water. That this principle is well recognized is shown by the increasing frequency with which saline infusions are given in many diseases characterized by more or less toxemia. In some cases water is so given because it is not possible to persuade the patients to take a sufficient quantity by mouth but in many others it is used to increase the quantity taken in. The frequency with which water is given by the bowel is another proof of the value of the internal use of water. Much of this is so evident as to require no mention.

Notice should be taken of one mistake which seems so evident that one would suppose its absurdity would be apparent did not experience show that it is made too often. This is the giving of diuretic drugs to increase the amount of urine when water is not being administered in even ordinary amounts. This seems an absurd mistake, but the fact that water must be given internally before it can be excreted is often forgotten. To give diuretic drugs without administering water and to expect large amounts of urine to be passed is like trying to make bricks not only without straw but without clay.

When we consider the amount of water which enters into the composition of the body and how great is the constant interchange in the constituents of every tissue of the body, the importance of the passage of considerable amounts of water is evident. This is true of health, but much more of acute infections in which so many of the cells of the body may be injured. The amount of water which should be given in any particular case of infectious disease must depend on many factors and the state of the circulation and kidneys should be kept in view. Still as a general rule it may be said that these systems are more likely to be injured by toxins than by internal hydrotherapy. In typhoid fever, for example, the effort should be made to have the patients pass each day at least 3,000 c.c., and better 5,000 c.c. of urine. In pneumonia such amounts can rarely be reached and perhaps 2,000 c.c. of urine is as much as can be hoped for in the ordinary case. In septicemia again we may hope to obtain the larger amounts. A certain amount in these cases is excreted by the skin and must be kept in mind in estimating the total output of water. The benefit of these large amounts of water in infection has not been generally utilized, even if recognized. We fail to carry into practice the knowledge that in the treatment of typhoid fever nothing which can be given to the patient in the way of food or drugs can be at all compared with water. It is altogether likely that to-day throughout the country there is nothing for which typhoid fever patients are suffering more than for water. The direction so often given, "Let him have all the water he wishes," does not do enough; he may not want any, but in almost every case water should be forced and the amount be specified just as we would in the case of a drug.

Some hospitals have found that when they had to care for a large number of typhoid fever patients, it was great economy in the amount of nursing required for these patients if one nurse in a ward did nothing else

but give water to the patients. To the doubters one can only suggest that they give internal hydrotherapy a trial. But some are like Naaman and ask, "Are not our antipyretics and intestinal antiseptics better than all the hydrotherapy?" One observation on this question was furnished by an orderly who had been working with typhoid fever patients. He had noticed that the patients who drank large amounts of water and voided corresponding amounts of urine did much better than those who did not take much water. He had been impressed by the fact that they required fewer tub baths and had shorter courses of fever as a rule. Taken ill himself with typhoid fever he carried his water-drinking rather to excess, for in twenty-four hours he voided the enormous amount of 26,000 c.c. This was not kept up, of course, but his confidence in water-drinking was fortunately supported by a short and satisfactory course.

In certain diseases, such as gout, arteriosclerosis or chronic arthritis, we advise the ingestion of considerable amounts of water as a routine measure, regard being always had to the state of the circulation. In these diseases there are several factors; metabolism is probably helped and also the excretion of toxins is aided. Then, too, the influence on the digestive tract must be kept in mind. Here again, as in the circulation, attention must be paid to the local condition of the gastrointestinal canal, especially the stomach, for the condition of an atonic stomach might be made worse by too much water. In hepatic cirrhosis large amounts of water are beneficial, perhaps largely through the effect on the digestive tract.

The general effects of internal hydrotherapy may be summed up as especially shown in toxic states of all kinds, whether due to acute infection, some disturbance of metabolism or the more elusive nervous states; in conditions in which a diuretic action is demanded; in local conditions of the digestive tract and its associated organs; and the best performance of the ordinary bodily functions is brought about by the ingestion of considerable quantities of water.

LOCAL HYDROTHERAPY

In discussing the principles of this we have to do with processes which are closely allied to those which operate in counter-irritation and the local use of heat and cold. There are two systems involved in the action of local hydrotherapy, the circulatory, using the term in its widest sense, and the nervous. In many cases, especially those in which the process is superficial, it seems probable that the effect on the circulation is the more important; in other cases it seems that both systems must be influenced. It is often difficult to decide which plays the more important part.

In the use of water locally, as is well exemplified by the application of compresses, there are several factors at work. One of the most important of these is the effect on the blood flow through the vessels in and near the affected area. The rate at which fluid flows through a tube is markedly influenced by the temperature, and with increase of this the rate of flow is made slower. Hence a reduction in the temperature results in a much-increased blood flow through the vessels. With this, of course, other influences are associated, especially the effect on the vasomotor system, which varies with cold or hot applications. Another factor is the effect of the application on the osmotic pressure of the tissues and fluids. This is markedly altered in tissues which show inflammatory changes, and in its restoration to normal local hydrotherapy has an important influence.

Again in some cases applications to the surface may have an important effect on deeper structures. We are all familiar with this in the case of counter-irritants and accept it as a matter of course, yet in many cases the influence of local hydrotherapy is quite as marked. A familiar example is the use of cold compresses to the thorax in cases of bronchitis. No form of treatment can equal this in the certainty and promptness of its action. When we remember that acute bronchitis is due to an infection in the great majority of cases it seems reasonable to suppose that the circulation is definitely affected, as otherwise it is difficult to understand the effect produced. Applications to the thorax in pneumonia probably have both a local and general effect. The influence of compresses to the abdomen is seen in their employment in the meteorism of acute infections and also in various nervous disturbances such as mucous colitis.

The effect on the local nervous influences is well seen in the relief of pain by the use of cold or hot compresses. The use of cold to a degree which produces anesthesia is not carried out by hydrotherapeutic measures, but the principle is the same. Certain associations—call them reflex if you will—may also be markedly affected, as for instance in the use of cold compresses to the abdomen in meteorism. In this case probably several things occur. The cold causes contraction of the abdominal walls which, as has often been pointed out, has a marked effect on the abdominal contents and probably influences the circulation as well as the muscular contractions. The circulation in the viscera is probably influenced also as is seen in the effect of hot application to the loins on the renal secretion in acute nephritis. Then, too, it may be that the sympathetic system is effected by external applications. So that altogther the mechanism at work is a complicated one.

GENERAL HYDROTHERAPY

As essential examples of the use of this form of hydrotherapy we may take the employment of tub baths and wet packs. They are particularly useful in two great groups of disease, infections both acute and chronic and various nervous disorders. Perhaps it is in cases of infectious diseases with toxemia and marked mental features that we find the best examples of the favorable results which can be obtained from general hydrotherapy. In these again the coincident use of internal hydrotherapy adds greatly to the effect.

Of its value in infectious disease we find no better example than in typhoid fever. The discussion of the reasons for the giving of tub baths in this disease is such an old one that to go over it again seems like playing an old tune too often, but the need of repeating it constantly was emphasized while this was being written by reading an article presented at a society meeting which criticized the use of tub baths in typhoid fever because they did not keep the temperature down. It is one of the principles of hydrotherapy in this connection that it is not employed to keep the temperature down. When employed in typhoid fever it may reduce the temperature, but whether it does or not is not necessarily of special importance. The mere reduction of temperature, except in cases of hyperpyrexia, is of no special advantage in the course of an infection. The explanation of the value of tub baths in typhoid fever is a complex matter and many points have to be considered. Its great result is in the reduction of mortality and this comes largely from saving patients who otherwise would have died

from toxemia and it is to the influence on this that we must turn. The effect of the baths comes largely through two systems, the circulatory and the nervous, by which the whole body is influenced. Increased excretion of toxins there must be; otherwise the influence on toxemia is hard to explain. Yet apart from this there must be some direct effect also on the nervous system as is shown by the marked beneficial effect on delirium and other nervous symptoms which sometimes is evident for an hour or so after a bath. This is perhaps due to the effect on the circulation. The influence on the circulation is especially seen in the effect on the vasomotor tone and secondary to this on the heart itself. Given a better circulation and the nervous system is better supplied with blood, while the kidneys can work to more advantage in the excretion of toxins. This in turn means less toxic effect on all body cells, especially those of the nervous system and the centers are better able to carry on their work. The vasomotor paresis is diminished and so we have a beneficial circle of events, each part helping the other and all intimately connected. Then, again, respiration is greatly improved and this results in better aeration of the blood and a better oxygen supply to the tissues. As a result of the deep breathing during each bath the lungs are thoroughly expanded—a condition which in a toxic patient it may be impossible to bring about in any other way—and as a consequence hypostatic pneumonia is almost unknown in typhoid fever patients who are being given the bath treatment. With the improved circulation the digestive tract is better nourished and less disturbance results, perhaps in no particular better seen than in the lessened occurrence of meteorism. It is evident that the effect on the circulation influences everything, the state of the nervous system, the excretion of toxins, digestion, and metabolism generally.

In the functional nervous states, especially when there is insomnia, one of the best therapeutic measures is the use of wet packs. What is the explanation of the effect of this on the central nervous system? It must be through both the circulation and peripheral nervous systems. Doubtless the early shock—if the pack be cold, as is usually best—with the following reaction causes a marked influence on the whole circulation, usually affected in these patients, and this doubtless influences the nervous system. But there is probably more than this. In the various functional nervous disorders, as in the severe attacks of acute infections, there is usually disturbance of the peripheral vasomotor system and probably of the central vasomotor system as well. The effect of general hydrotherapy is to lessen this and make the control more normal. This probably is partly brought about through giving the whole vasomotor system proper exercise. Given a normal vasomotor response it seems reasonable to suppose that for a time the working of the vasomotor system will be improved. It is a training in the normal performance of a function for which it is necessary, however, that a proper response be obtained, as too much vasoconstriction of the surface vessels without any reaction is harmful. Therefore comes the importance of friction, especially in the administration of tub baths. Constant active surface friction is a very essential part of the bath, a point which is sometimes lost sight of, especially by critics. In the use of wet packs friction may also be advisable but is not so important, as the reaction is more easily brought about. This exercise of the vasomotor system is one of the great helps we get from hydrotherapy.

Again the influence through the surface circulation on that in the deeper structures plays an important part. We use this frequently in certain methods of counter-irritation to influence the circulation in a particular area. By general hydrotherapy we can do this for the body as a whole. It is probable that an affected circulation means more to the function of various organs in acute infections than we usually realize. Witness the disturbances which follow in the train of a loss of compensation of the heart. Consider the rapidity of the improvement under digitalis therapy in many cases; cough and dyspnea lessen, vomiting ceases, and the kidney resumes activity. Hydrotherapy may influence the circulation in the viscera to an almost equal degree, perhaps if not with an equal rapidity.

Of the influence of general hydrotherapy in individuals who are not ill we have abundant personal proof. How much the cold morning tub adds to the working ability of the world is hard to estimate. It is difficult to know how many patients, whose nervous systems are only just about equal to the daily demands, are kept up to the mark by it. Of its effect in the prevention of "catching cold" we are all aware, perhaps forgetting sometimes that this is through its effect on the vasomotor system. Of these two great results from external hydrotherapy in health—the general brace to the nervous system and the decrease in the liability to various infections—most of us take daily advantage. It sometimes causes wonder why many men are not willing to give to their patients who stand in need of it the opportunity of obtaining the same results in disease and of being helped by one of our most useful therapeutic aids—hydrotherapy.

935 St. Paul Street.

ABSTRACT OF DISCUSSION

DR. DAVID PAULSON, Hinsdale, Ill.: The painstaking experiments that have been made by Winternitz and other workers have served to put hydrotherapy on a much more scientific basis than even electrotherapy. Winternitz showed that for several hours following a general cold application, there was an increase of 10 to 20 per cent. of red and white blood cells in the circulation, as well as a marked increase in hemoglobin. We are only beginning to appreciate the possibilities in hydrotherapy. It was a great day for physiologic medicine when Dr. Baruch was invited to give instruction in hydrotherapy in the College of Physicians and Surgeons in New York. Only recently a department of hydrotherapy has been added in the Chicago Postgraduate Medical School. All this shows that we are making progress. As you all know, hydrotherapy has completely revolutionized the treatment of typhoid fever. It is important to appreciate that it is equally valuable in other acute infections, and for that matter in all the chronic diseases.

Early Sign of Pott's Disease.—Angelescu has noticed that caries of the spine generally begins in the anterior segment, and consequently that traction on the anterior longitudinal ligaments is painful in these cases even when there is nothing else to suggest the vertebral process. He has the patient lie on the back and arch the body, resting only on the back of the head and the heels. This position induces pain in the diseased area or the pain is so severe that the patient is unable to assume this attitude. According to the *Deutsche med. Wochenschrift*, another Roumanian writer, N. Athanesescu, has recently reported positive findings with this sign and thus early differentiation of the disease before there was any local tenderness on pressure, stiffness of the spine or prominence on the part of any of the vertebræ.

TEACHING THE STUDENT THE OPERATION OF PARACENTESIS OF THE DRUM-HEAD

HARRY FRIEDENWALD, M.D.
BALTIMORE

As a teacher of otology, I have long experienced the difficulty of all teachers of this branch to properly train the medical student to perform the operation of paracentesis of the drum head, an operation which I think it is agreed that every general practitioner should be able to perform. I have solved this difficulty by a little device which I have put to use for several years in my classes at the College of Physicians and Surgeons of Baltimore. It consists of an addition to the well-known schematic ear model of Bacon (Fig. 1). This model is supplied with a large number of brass plates into which colored pictures of the normal and diseased drum-heads are placed for the purpose of "teaching manipulation of the speculum and head mirrors." I have had made double brass plates of a general form similar to those made to hold the pictures, but provided with an opening of the size and shape of a drum-head, one of the plates having a little stem to represent the handle of the hammer (Fig. 2). The two plates are held together by a screw which allows one to separate them and place between them a piece of thin paraffin paper, such as is used by florists, and which well represents the drum membrane (Fig. 3). This device is then inserted in the model and the student, supplied with a head-mirror, speculum and paracentesis knife, is allowed to practice the operation many times. I may add that this device has been of the greatest help to teacher and student.

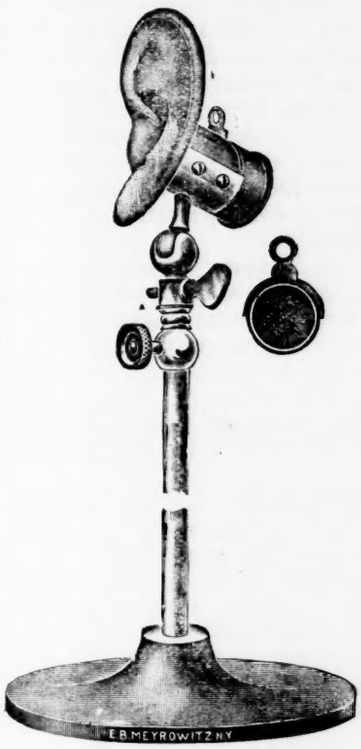

Fig. 1.

Fig. 2.

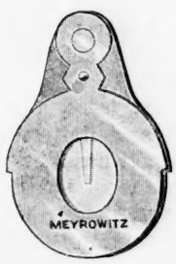

Fig. 3.

Fig. 1.—The schematic ear model of Bacon for teaching manipulation of the speculum and head mirrors.
Fig. 2.—Diagrammatic representation of drum-head showing handle of malleus.
Fig. 3.—Same as Fig. 2, with paraffin paper stretched over it to represent drum membrane, for teaching method of paracentesis.

1029 Madison Avenue.

TETANUS SUCCESSFULLY TREATED WITH LARGE QUANTITIES OF ANTITOXIN

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MILWAUKEE

History.—G. S., a young man 18 years old, was running a foot-race barefooted at one of the lakes near Milwaukee and ran a splinter about an inch long in the big toe of his left foot. The splinter buried itself under the phalanges and acted as a splint, preventing motion of the toe and causing the toe to swell. Not knowing of its presence, he thought the toe was sprained and applied poultices. The accident occurred August 24, and the splinter was not discovered until September 4, on which date it was removed.

Treatment and Course of Disease.—On Tuesday morning following its removal, the patient came to my office complaining of "ear-ache" and pains in his chest. I immediately injected 1,500 units of tetanus antitoxin; the symptoms continued getting worse, and the next morning I injected 3,000 units, but there was no abatement of the symptoms, and that evening he went into tetanic convulsions. I could procure no more antitoxin until Thursday morning. Then I started giving him injections into the body of 3,000 units of tetanus antitoxin every three hours. The disease continued without any abatement until Friday evening about six o'clock, when I could see a slight improvement in the patient's condition. At nine o'clock the injection seemed to have a soporific effect on him and his muscles relaxed. Subsequently he would be relieved for a half hour or so following each injection, after which the convulsions would come back with sudden snap, causing him to bite the edges of the tongue and assume the opisthotonos position. The condition was so painful that I had to resort to chloroform. The patient would relax and fall asleep, but only for five minutes, when again the contractions would return. At this time, Friday night he had taken about 45,000 units of the serum, and while the chloroform would only relax his muscles for from five to ten minutes, he would show a relaxation for from one-half to three-quarters of an hour following the injection of the serum. This gave me confidence that the serum was beginning to show its effect on the toxins, and I pushed it every two hours during Saturday for about fourteen hours, every dose giving the patient rest.

After using the chloroform at intervals to control the exacerbations, I resorted to a rectal injection of chloral hydrate, 20 grains. This also had a quieting effect, but I was afraid to repeat it on account of the depression of the patient, although the result was good and he fell into a deep sleep.

On account of the retention of urine on Friday, I was afraid of uremic coma. He woke up after three hours with the spasms, but they did not seem so severe. I resorted to diuretics, including sweet spirits of niter and digitalis, with good results. He began to pass a sufficient quantity of urine, but trouble began with his bowels. Under the influence of large doses of castor oil, the contents of the descending colon when they reached the sphincter would throw it into tetanic contraction and would not pass. Then regurgitation would take place, and when the contents reached the transverse colon it would again throw him into a violent spasm. This condition kept up for about twenty hours. I injected olive oil and glycerin, but he would retain it. I had the same result with soap and water enemas. This kept up until Sunday morning, when he finally had an evacuation. By this time, Sunday morning, the pains were not so severe in the chest, but were frightfully bad in the abdominal muscles, during the spasms the patient crying out that he was ruptured, which was not the case. I continued the serum all through Sunday at intervals of three and four hours, until Tuesday, September 13, when he had taken in all 112,500 units. I might state that the trismus and the pains in the chest subsided partially during Sunday, but on and after Tuesday, September 13, the exacerbations disappeared gradually and the patient made a complete but gradual recovery. His urine showed on analysis a condition similar to acute nephritis.

The temperature never ran higher than 103 F. A rash, not unlike that of scarlatina, with an intense pruritus appeared.

Morphin was resorted to with good effect, but to me it appeared that it was the antitoxin that effected the cure, and without it I believe that the patient would have died on Friday, September 9, as on that day the dyspnea was intense, and the patient became cyanosed, but after each dose he regained his color and got the needed rest.

It is my opinion that great quantities of the antitoxin must be used in these cases; if the toxins in the blood are to be destroyed the blood must be saturated.

I saw no ill effects from it outside of the rash. It seemed to support the heart by raising the blood-pressure. I do not doubt that in a case in which there is arteriosclerosis there may be danger of apoplexy, but in this case the patient was a young man with resilient vessels.

600 Grand Avenue.

THE MUFFLED ROOM IN THE TREATMENT OF ACUTE INSANITY

SANGER BROWN, M.D.
CHICAGO

By the muffled room I mean an apartment constructed in such a way that any noise made by the occupants may not be heard without it, and conversely, any noise made from without may not disturb those within. It should be large enough so that by employing forced ventilation the air may be kept pure in it at all seasons of the year. Its principal purpose is to facilitate individualization in the treatment of acute insanity.

By "individualization" in this connection I wish to imply that the physician in the treatment or management of a given case may be relieved from any obligation or necessity of making concessions to other cases. One of the most perplexing features a physician has to reckon with in the institutional treatment of acute insanity is to prevent the various manifestations of excitement incident to the disease from injuriously interacting on patients whose quarters are adjacent to each other and unless muffled rooms be available, on the principle of the greatest good to the greatest number, he is often compelled both by night and by day to prescribe "quieting" medicines for, or to employ other methods of sedation on, a patient who would be better off without them, especially when they have to be carried far enough to produce and maintain quietude over a considerable period of time.

As acute insanity is a disease for which no specific is known, and which under the most favorable circumstances usually runs a course of several months, measures calculated to promote and conserve the patient's bodily health are of cardinal importance in its treatment, for it is by maintaining the bodily forces in the most perfect condition that the chances for the brain to resume its normal functions are most favorable. Hence it seems peculiarly unfortunate for the physician to feel under the necessity of resorting to measures which he believes are in any way prejudicial to the best interests of his patient.

In a patient of delicate constitution, the prolonged excitement incident to the disease may bring about a critical situation in which only by the most judicious care and management can the patient survive, and the desirability in such cases of not having to reckon with the interests of others seems very obvious. It not infrequently happens that this tendency to noisy excitement continues more or less constantly through a period of many weeks and the artificial maintenance of a sufficient degree of sedation to insure quietude over so long a period, by reducing the strength and causing disorder of the secretions, might bring about a very deplorable condition of bodily health, which, it is not difficult to conceive, might result either in a fatal issue or an incurable condition, when under more favorable circumstances recovery might have ensued.

When one has the opportunity of studying the natural history of these cases, as he may do when he has muffled rooms at his disposal, he learns that the patient's condition may be in every respect very much better at the end of a given period of a week or two, for instance, when medicinal sedation is not employed at all than if a patient be kept in a state of quietude by its use. My purpose, however, on the present occasion is not to discuss the value of different kinds of remedies in the treatment and management of acute insanity, but to draw attention to what I regard as the very great advantage to be gained when, in treating a patient in an institution, the physician has a free hand to employ such measures as he feels will best promote the comfort and recovery of a patient without in any way doing prejudice to the interests or comfort of others.

Lest I be misunderstood, having spoken of the benefits which I believe sometimes result from withholding chemical sedation in a case of acute insanity altogether, I wish to say that I think I fully recognize the value of the various remedies and do not hesitate to use them when I think they would be of benefit. I am maintaining, however, that they should be prescribed only for the sole benefit of the patient to whom they are administered.

Though perhaps this principle has not been stated quite so definitely as the term "the muffled room" might imply, it has been recognized for many years in the construction of public hospitals for the insane. So far as my observation has gone, however, even in them it has been very imperfectly carried out and in many of the smaller private establishments it has been entirely disregarded. In public hospitals, wards for excited patients are usually placed as far as possible from the apartments of those who are not disorderly, and in some there are a few rooms which are separated by a hall or corridor with the view of confining the noise; but in my opinion the principle has not been recognized and carried out at all as it deserves.

In some private establishments a separate building for excited patients is provided, but there are usually few if any special provisions made in it for preventing the dissemination of noise, and hence it not infrequently happens that conditions in this building are, to say the least, not such as might be desired; and it is not good practice, on the particular days or hours when the excitement for the time being has subsided, to transfer a patient to the building where the quiet patients are kept, only to send him back when he again loses self-control.

It will not be disputed, I think, that these rooms are well-nigh indispensable to insure the best treatment of acute insanity, no matter what attitude one takes in regard to chemical, mechanical or personal restraint, hydrotherapy, occupation or what not. I have had a number of them at my disposal now for a period of about five years and find them eminently satisfactory.

In the erection of a fireproof building, its equipment with well-muffled rooms throughout in the manner here proposed, might add 25 per cent. to the cost. The requirements of the situation would, however, in my opinion, be fairly well met in an establishment devoted

mainly to the treatment of acute cases if one-quarter of the rooms were muffled. The question of satisfactory muffling depends on the treatment of the doors, windows, floors, ceilings and partitions, and is a problem for the practical architect and the engineer to solve. So far it has not been satisfactorily worked out. This is probably owing to the fact that such construction has not been urgently demanded. In the institution in which I have gained my experience with the method, when the building was being erected, since it was not fireproof, I simply had several layers of Cabot's sheeting quilt placed in the partitions in the floors and ceilings, and had double doors and windows put in, and then placed a fan in the outlet flue (each room in the house has an independent inlet and outlet flue for ventilation) to provide for forced ventilation, and this later provision has been entirely satisfactory. I found, however, that while by this device the manner and the degree of muffling was considerable, it was far from what one would desire in certain instances. I have further thickened the walls in some of the rooms in various ways; that which has proved most satisfactory has been to line the walls and ceilings with tiling such as is used in partitions for fireproof building. The matter of muffling could certainly be very well worked out by practical experiment. Indeed, this may already have been done, but if it has, I am ignorant of the methods employed.

100 State Street.

Therapeutics

DIPHTHERIA

(Concluded from page 1557)

TREATMENT AFTER DIAGNOSIS OF DIPHTHERIA HAS BEEN MADE

1. If the diagnosis seems positive, do not wait for culture proof, but inject antitoxin immediately.

2. If there is doubt and the culture proves positive, then immediately inject antitoxin.

3. If possible, seek the source of infection.

4. Report the case to the board of health.

5. Use the gargles as recommended.

6. Nutrition becomes of much greater importance, as diphtheria is depressant, and the disease must last at the best a week and perhaps two weeks, and the average time that the bacillus has been found in the throat cultures is three weeks. The diet should be a well-chosen, mixed diet that is easy of digestion. The character of the food should depend on the temperature and the behavior of the stomach. A diet should consist of oatmeal gruel or other cereal, a small amount of milk, toasted bread, one or two eggs a day, meat juice, mutton broth, sufficient salt, ice cream, gelatin, orange juice, lemonade, and plenty of water. The proper diet for the individual patient can be readily selected from the above. The manner of administration and the amount must depend on the condition of the patient, but some positive nourishment should be administered every single day. The frequency of the nourishment should generally be about every three hours in the daytime, and some little nourishment in the middle of the night. The nourishment should be given about five or ten minutes after the gargling, never just before it, as the gargling may nauseate the patient. Also, after the gargling there will be less possibility of swallowing germs into the stomach. While it has been shown that the gastric juice ordinarily kills the Klebs-Loeffler bacillus, and it is perhaps never found in the intestines, still, it would be possible for this infection to do harm in the stomach, if the stomach wall had been injured or if the gastric secretion were insufficient. It has also been shown that after the use of antitoxin the gastric juice is even more active in killing the germ.

7. Diphtheria seems to interfere with the red blood-corpuscles, and the patient becomes readily anemic from the intensity of the disease or if the depression is prolonged. Therefore, from the beginning, whether the patient apparently needs it or not, iron should be given, and iron in its best and strongest form, viz., the tincture of the chlorid of iron. It is well to give it in 5 drop doses once in six hours, and is well administered in fresh lemonade, or it may be given as follows:

℞	Gm. or c.c.		
Tincturæ ferri chloridi	5		fl.℥iss
Glycerini	10	or	fl.℥iij
Syrupi acidi citrici	25		fl.℥i
Aquæ	ad 100	ad	fl. ℥iv

M. et sig.: A teaspoonful, in water, every six hours.

The solution of iron may be taken through a glass tube or a straw or the mouth may, after its administration, be cleansed with water.

8. The heart and character of the circulation should always be watched in every case of diphtheria. As patients formerly frequently died, and now not infrequently die, of sudden heart failure in this disease, the physician should be emphatic that the patient with this disease should remain in bed, even if he is an adult and apparently not very ill. When he rises to gargle or for movements of the bowels he should rise slowly and carefully and should not exert himself any more than is absolutely necessary. A child must be watched constantly lest he exercise too much in attempting to play about the bed. As soon as the pulse feels too soft or becomes rapid, or before it gets to this point, small doses of strychnin should be administered, either 0.002 gram (1/30 of a grain) from once in eight to once in six hours, or 0.001 gram (1/60 of a grain) once in three or four hours. If the patient feels suddenly faint, the nurse may administer a proper dose of brandy or whiskey, or some aromatic ammonia. If there is an attack of heart failure, a hypodermatic injection of strychnin (1/30 grain) and atropin (1/150 grain) will generally be sufficient. Occasionally if the patient is not receiving sufficient nutrition, a small amount (not sufficient to flush the patient or cause the odor to remain on the breath) of whiskey or brandy may be administered regularly as fuel. It should not be considered that the alcohol is a cardiac tonic, as it is not. If a patient is at any time weak and collapsed, hot water bags and other methods of applying dry heat should not be forgotten.

9. The urine should be frequently tested for albumin. Not that a slight albuminuria would ordinarily need any special treatment, but that the physician should know the condition of the kidneys, as with an albuminuria the physician should take meat out of the diet, and perhaps modify the medication. Antitoxin is not a cause of albuminuria. Diphtheria can cause albuminuria, and may consequently cause it after antitoxin has been administered.

10. The convalescence after diphtheria should be prolonged. The gargles should be gradually used less frequently, first omitting the night gargling. The feedings

should be less frequently administered and more in amount. The patient should gradually sit up and as gradually get about. The first gargle to be stopped should be the peroxid, as it becomes an irritant and may keep the throat red and even swollen. The boric acid should be persisted in, and the potassium chlorate is one of the most soothing of gargles. For the liquid iron preparation the above capsule suggested for follicular tonsillitis convalescence may be substituted. Often the glycerophosphates of lime and soda are the best of tonics. If the patient does not rapidly recover strength, massage should be given, fresh air, drives, and all the other adjuncts to hasten or complete a convalescence. Severe exercise should not be attempted for some time if the patient has been seriously ill with diphtheria, as the heart is unable to stand much strain for some time.

11. Paralysis of the palate is much less frequent than formerly on account of antitoxin so rapidly inhibiting the disease. However, it is largely due to the absorption of toxins from the local inflammation, and consequently the greater the cleanliness of the throat, the less likelihood of this paralysis. This neuritis of the nerves of the palate may occur in the latter part of the disease, but often does not occur until during convalescence. A multiple neuritis rarely occurs from diphtheria. For paralysis of the palate there is no special treatment other than a prolonged use of strychnin, country or seashore fresh air, and a more prolonged convalescence. For multiple neuritis the treatment is the same with the exception that electrical treatment of the paralyzed muscles is added.

12. After the patient has apparently recovered, the throat should be swabbed, several hours after the last gargling, and another culture made to ascertain if the Klebs-Loeffler bacillus is absent. Until this germ has disappeared, the patient should remain isolated.

13. As soon as the culture is reported negative, the board of health is notified, and the patient's hair is washed, he is properly bathed, clean clothes are put on in an adjoining warm room, and the infected room or infected part of the house should be fumigated.

LARYNGEAL DIPHTHERIA

Whenever a child, especially a young child, is taken ill, the physical examination is never complete until the throat has been examined. If there are any symptoms pointing toward the nasopharynx or toward the larynx, even though the pharynx and tonsils are clean, the possibility of diphtheria infection in these regions should never be forgotten. A swab specimen from these regions should be sent to a bacteriologic laboratory. If by means of the laryngoscope a suspicious epiglottis or larynx is seen, antitoxin should be immediately given without waiting for the bacteriologic report. It should be remembered that laryngeal diphtheria (membranous croup) can occur without fever and can cause occlusion of the larynx in from twenty-four to thirty-six hours; consequently, antitoxin must be used immediately.

A tent should be made over the crib or bed, and the child should frequently inhale steam-laden vapor. This will keep the larynx moist and allow the membrane to be coughed or raised.

The throat of a young child may be sprayed, but it is practically impossible to spray the larynx in young children, especially when they are readily strangled by it. The sprayed solution should be diluted and nonirritant.

A physician who has in charge a laryngeal diphtheria patient should be in touch with the physician or surgeon in his immediate locality who is able to do intubation. An intubated child should have a nurse always instantly at hand to remove the tube if it is coughed up if the child is strangling, and to send for the physician immediately in order that the tube may be quickly replaced or that tracheotomy be done.

The general care of laryngeal diphtheria and of the convalescence is the same as for tonsillar and pharyngeal diphtheria.

ANTITOXIN

It is not necessary to discuss the value of the antitoxin treatment of diphtheria. Its value has been proved clinically daily and statistically yearly. It should be administered immediately if the diagnosis is clinically positive without waiting for the culture report. It should be administered in doubtful cases as soon as the report is positive, unless the disease is already found aborted by the time the report is returned. In this instance the isolation should persist as usual. The prognosis in every case of diphtheria is so much better and the duration is so much shorter when the antitoxin is early administered than when later administered that there can be no longer any discussion on this point.

It should always be remembered that antitoxin combats nothing but the toxins of the Klebs-Loeffler bacillus and does not combat the toxins of secondary infection. Therefore, when secondary infection is present the antitoxin must not be relied on to save the patient, but every means at our command must be used to remove the secondary infection, to reduce the toxemia, and to support the patient.

The diphtheria antitoxin has apparently no direct bactericidal effect. Whether it chemically neutralizes the toxin, or whether it stimulates the cells to tolerance of the toxin, or stimulates the production of opsonins, it does generally arrest the spread of the local infection, apparently inhibits the growth of the bacillus, and hastens the loosening of the membrane.

Apparently the only contraindication to the use of antitoxin is in a patient who is an asthmatic or a hay-fever subject who is especially susceptible to the odor of horses or the emanations from stables. Such patients have been found to be particularly susceptible to this serum prepared from horses, and deaths have occurred after its administration, largely due to swelling of the bronchial mucous membrane, similar to asthma and urticaria, and death is caused by suffocation and oppression. These patients should not receive antitoxin. Patients who are not so afflicted and who acquire diphtheria should receive the antitoxin..

The only unpleasant symptoms that can occur are a slight increase in temperature, slight skin eruption possibly, either urticaria or erythema, and some local swelling, heat and burning over the region of the injection. Such symptoms rarely last twenty-four hours and generally do not occur at all, except possibly a slight local reaction. Albuminuria attributed to the injection is probably generally an albuminuria caused by the disease. That a lung congestion can be caused by the antitoxin is exceedingly doubtful, and in the rare instances in which such congestion has occurred it was probably due to the severity of the disease.

The dose of antitoxin has been gradually increased in size. Perhaps the best immunizing dose for a child under 5 years is 500 units. For over 5 years the immunizing dose should be 1,000 units. Under 5 years of age

the first dose for treatment should be from 2,000 to 3,000 units; over 5 years from 3,000 to 5,000 units, depending on the severity of the infection. If there is no improvement in the condition in from 12 to 15 hours, a second dose should be administered, generally one-half the size of the first dose, and this repeated again in 12 hours if needed. Rarely will more than 3 doses be required, and generally but the one. If, however, on successive days the disease does not abate, the patient's immunity to the diphtheria toxin is not established, and the antitoxin may be repeated for several days. It has not been shown that antitoxin, except in the instance of idiosyncrasy to horse serum above described, has produced death. However, it should be emphasized that it is better judgment to give the first dose of sufficient size to combat the severity of the infection rather than to give small doses more frequently repeated which will make the sum total of units required for such divided treatment larger than a properly estimated initial dose.

Antitoxin is now furnished in aseptic containers ready for subcutaneous administration.

PREPARATION OF ANTITOXIN

The substance itself, antitoxin, is at present derived from horses which have been rendered immune to the action of the diphtheria toxins through repeated injections. The toxins are the products of the Klebs-Loeffler bacillus and are set free in connection with its growth. Their action on the living cell is a coagulation necrosis, as evidenced in the so-called diphtheritic patches seen in the throat, the necrotic foci in the internal organs, and general systemic poisoning and prostration.

The first step in the manufacture of antitoxin is the production of toxins in various strengths. These are gotten in the following way. From a diphtheritic throat is obtained a culture of the Klebs-Loeffler bacillus, which, after freeing from contamination is planted in bouillon and allowed to grow in the dark in 37° C. for some time. As the bacilli multiply, their products ultimately inhibit their own growth, and there remains a solution, in the bouillon, of these toxins with a few germs only. This product is now filtered through glazed porcelain, and to it is added a small amount of an antiseptic. Then the toxicity is ascertained by injecting it into guinea-pigs, weighing 250 grams, until the minimum fatal dose has been ascertained. This marks the toxic strength of this particular product. A small amount of toxin prepared as above is injected subcutaneously into a horse, and for this purpose the horses are absolutely healthy and in fine physical condition. As a result there is a rise in temperature, some loss of appetite and of weight, but in a few days these effects all pass away. When the effects have passed away the horse receives another dose of toxin slightly larger and when the effects of this wear off, another, still larger, and so on until the animal becomes tolerant to a large dose of the toxin. At this time it may be assumed that the blood of this particular horse contains a considerable amount of antitoxin, and the next step in the process is to determine just how much. This is done by withdrawing a small amount of his blood, preparing the serum from it, and measuring this against a toxin of known strength by means of the guinea-pig. If it does not show sufficient antitoxic strength, further amounts of toxin are introduced into the horse to cause a better antitoxin to be produced, and the serum is again tested. When repeated tests have demonstrated the required strength, the horse is bled from the external jugular vein, every possible aseptic precaution being observed.

The next step in the operation is the preparation of the serum from the drawn blood. This is done under the most elaborate system of asepsis. Small samples are taken to ascertain its toxic strength and its freedom from bacterial contamination. These are verified, the product is put up in containers and stored for a length of time under suitable conditions. They are then re-examined prior to being put on the market.

As for the horse, he soon recovers, as the amount of blood withdrawn is not enough to harm him, and he is ready to be used over again, which process can be kept up for a long, long time.

As regards the standard of strength, the first fact to remember is: the standard of diphtheria toxin sufficient to kill the standard guinea-pig is 0.1 of a cubic centimeter.

A normal serum is one possessing such potency that 0.1 c.c. will completely counteract the effect of 0.1 c.c. of toxin. In other words, 0.1 c.c of normal serum will save ten guinea-pigs from the fatal dose of toxin. 1 c.c. of normal serum will counteract 100 fatal doses, or 10 c.c. of toxin, and this constitutes a normal unit. Or, to repeat, the antitoxin unit is that strength of serum, independent of its bulk, which will counteract the effect of 100 times the fatal dose of toxin for the standard guinea-pig.

The various preparations of antitoxin that have been on the market have differed considerably in the bulk requisite for a given strength, but at the present time they are practically uniform, and while necessarily varying slightly, have been much reduced in bulk. Antitoxin is now offered in all strengths from 500 units to 10,000 units.

ADMINISTRATION OF ANTITOXIN

The injection of antitoxin should be made only after the skin has been cleansed. The part selected should be first washed with soap and water, then thoroughly cleansed with alcohol, and a piece of cotton or gauze soaked in alcohol laid over the part while the syringe is being prepared. Previous to this the hands of the physician should be thoroughly cleansed, and the syringe and its various parts placed on a clean towel on a table near at hand. When the syringe is ready for use and the needle cleansed with alcohol, the skin should be dried with sterile cotton and the injection made into the subcutaneous loose fascia. The injection should be given slowly, and when finished the needle should be rapidly withdrawn and a piece of absorbent cotton wet with alcohol placed over the point of injection and an adhesive strap placed over it.

There are various suitable parts of the body for injection, but preferably one selects that where the skin is less firmly attached to the fascia and muscles; in other words, a part where the distention from the fluid will cause the least pain. This is in the wall of the abdomen. Often the injection is made into the back, between the scapulæ.

Venous injection of antitoxin, while it has been done, is probably not necessary, and there is always some danger attached to it.

Tablets made of antitoxin to be administered by the mouth are said to have been used successfully, but this method of administration is not to be recommended.

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THE PERSISTENCY OF CELL FUNCTION AND ITS BEARING ON PATHOLOGY

Under the foregoing title Professor Leube[1] of Würzburg emphasizes certain properties of the cells which seem to have important relations to various morbid conditions and to recovery therefrom. The underlying principle is that there is a well-defined tendency for each kind of cell to continue its work along certain characteristic lines which are determined for it during its organization and development. This is shown, for example, by the fact that many different kinds of stimuli acting on a cell will all cause the same effect; thus the mucous-gland cells secrete mucus when stimulated by heat, cold, toxins, chemical or mechanical irritants, while a muscle cell responds to these same stimuli by contracting. The difference in the effects produced by the several stimuli is quantitative rather than qualitative, for qualitative changes in cell function rarely occur; therefore injurious influences cause disease chiefly by producing quantitative alterations in cell action. If this quantitative change persists long enough the altered power of function eventually is acquired as a permanent character of the cells, and a persistent condition of disease results. Usually any persistent change in the direction or degree of cell activity is harmful; seldom is it useful except in the phenomena of immunity, and here study of the persistence of acquired characteristics of cells becomes of much practical importance.

Stimulation of cells, particularly those of the blood-forming tissues, by bacterial products causes a reaction which results in the formation of various antibodies. Thanks to the tendency toward persistency of cell functions, after each dose of bacterial products the cells react more quickly and more energetically; thus an animal which has been immunized to typhoid bacilli so long previously that most of the antibodies have disappeared from its blood will be found to react to a single minute dose of typhoid bacilli, too small to cause any appreciable reaction in a normal animal, with the production of large amounts of antibodies. It is probably this acquired character of reacting strongly to small stimuli which explains many instances of immunity in men and animals whose blood contains no demonstrable protective substances, as is especially exhibited by persons who have had typhoid. The so-called accelerated reaction to foreign serums, which is exhibited as one of the forms of serum intoxication, would seem to be another instance of the development of a persistent tendency to a certain line of reaction by the cells.

That the reactive capacity of the cells which have acquired an increased power of forming antibodies is a real example of persistency or tenacity of function, is shown best by the fact that this increased capacity is exhibited in response to all sorts of stimuli, which may be entirely unrelated to the natural specific stimulus which originally was the only thing that could cause this particular reaction. For example, if a person has typhoid, the power to form typhoid agglutinins is so increased that the blood contains greatly augmented quantities of this specific antibody, but after a time the excessive agglutinins disappear from the blood until its agglutinating power may be little or no greater than that of a normal person. In such an individual, however, many quite indifferent stimuli, such as hot baths, stasis hyperemia, or even merely a hearty meal, will commonly cause the cells to react by secreting into the blood the specific typhoid agglutinins which they have acquired a persistent habit of forming in large amounts. That raising the body temperature by means of hot baths is a most effective method of arousing this reaction, is an interesting bit of corroborative evidence in favor of the doctrine that fever is of itself a helpful influence in increasing the reaction against infection.

Presumably this "tenacity of cell activity" plays a part not only in immunity reactions but also in the diseases of metabolic nature. For example, adiposity may be looked on as a condition, sometimes congenital and sometimes acquired, in which certain cells have an unusually developed capacity for storing fat, so that they persistently react in this way to influences which have no such effect in normal persons. In gout we find that in spite of long-continued purin-free diet the blood always contains free uric acid, which is never present in the blood of normal persons who are on a similar diet; here a certain persistent tendency of cell metabolism may be brought out by such varied stimuli as alcohol, lead, overeating, exposure to cold, certain articles of diet, and the countless other things that can stimulate gouty attacks in those whose cells react in this particular way by abnormal metabolism of purins. Pathologists, after much discussion of the underlying principle of cancer etiology, at least in many instances, have come to ascribe the unlimited growth capacity of cancer cells to the acquirement of a specific character as the result of long-continued stimulation to multiplication. The cells which generation after generation have their reproductive capacity stimulated without corresponding stimulation of their other functions, eventually lose these other functions in large measure and in place have an overdeveloped power of multiplication; hence to any and all

1. Leube, W. von: Ztschr. f. klin. Med., 1910, lxx, 359.

stimuli they react by cell division. Von Hansemann calls such cells "anaplastic," while Adami would say that they have acquired the "habit of growth"; at any rate we have here another striking illustration of Leube's doctrine of tenacity of cell activity, in which any sort of stimulus causes the dominant function of the cell to be performed, in the case of the cancer cell the dominant function being that of reproduction.

UNTOWARD EFFECTS OF THERAPEUTIC SERUMS

From time to time there appear reports of sudden death following the injection of therapeutic serums. The usual sequence of events is that within a few minutes after the injection of the serum the patient has difficulty in breathing, the respiration being similar to that of a person suffering with an acute attack of asthma. Along with the respiratory involvement there is an anxious expression, sometimes itching and burning of the skin, and frequently acute edema of the mucous membrane of the pharynx and upper larynx. In fatal cases, the patient usually dies in convulsions. The heart as a rule continues to beat some time after respiration has ceased.

These cases, which fortunately are extremely rare, almost invariably follow a first injection of serum, only a very few instances being reported in which a second injection has caused death. Second injections after an interval of from fourteen days to four months are sometimes followed by the so-called immediate reaction of von Pirquet and Schick, in which the symptoms of the syndrome described and named by von Pirquet the "serum disease" appear within twenty-four hours. The symptoms of the serum disease, while sometimes very distressing to the patient, are, as a rule, not of an alarming character, owing to the non-involvement of the respiratory system. When a second injection is given after an interval of four months, then the reaction appears within from four to six days instead of after the normal incubation period of from eight to thirteen days. When individuals are given repeated injections of serum extending over a considerable time at intervals of two or three days, alarming symptoms may occur, sometimes during treatment. In some instances death has been reported when the serum was used in this manner. From this it would seem that the reaction of man to injections of serum is more analogous to the reaction of the rabbit than of the guinea-pig.

A significant fact has been noted, attention to which was first drawn by Rosenau and Anderson,[1] that the majority of the cases of sudden death following the first injection of serum in man were in asthmatics or in persons who experienced discomfort when in the neighborhood of horses. A number of serums used in such cases were studied by Rosenau and Anderson, who found them to be no more toxic for sensitive guinea-pigs than other serums which had caused no untoward symptoms in man. These authors suggested the possibility of a relation between asthma in man and hypersusceptibility to an injection of serum; and a recent paper by Meltzer[2] on "Bronchial Asthma as a Phenomenon of Anaphylaxis" brings forward considerable evidence in support of this possibility.

It would seem that the unfortunate accidents that sometimes occur following a first injection of serum in man depend on an inherent susceptibility of the individual and not on the toxicity of the serum injected. How this susceptibility is acquired we do not know, though it is hoped that the studies on anaphylaxis and asthma may throw light on this point.

It is greatly to be deplored that there seems a tendency in the minds of some physicians to hesitate to use therapeutic serums, particularly diphtheria antitoxin, on account of the possibility of untoward results following the administration of the serum. While this fear has been augmented by recent studies on anaphylaxis, it would not seem to be well-grounded. The knowledge of the fact that, in asthmatics or persons who have an idiosyncrasy to horses, the injection of horse serum may be attended with danger, should cause no hesitancy in the administration of therapeutic serum in others when the indication arises. However, when serum is administered it should be explained to the patient or to the family that the administration may sometimes cause unpleasant or alarming results, and the physician should remain with the patient for a little time following the injection.

The percentage of fatalities following the injection of serum is very small; for, in spite of the thousands of persons to whom serum is administered, only a small fraction of one per cent. suffer from serious ill effects, this percentage being less than that of fatalities following the use of anesthetics.

GLUTEN FLOURS AND DIABETIC FOODS

Two common misconceptions exist regarding gluten flour and various proprietary gluten foods on the market. One is that gluten flour is practically a starch-free flour; the other, a corollary of the first, is that any gluten flour or gluten food is a safe food for a diabetic patient. As regards the first proposition nothing could be much farther from the truth—at least so far as the great majority of American gluten products is concerned: and this fact in itself makes plain the fallacy of the second. It is probable that, proprietary medicines excepted, in the exploitation of no other products prescribed by physicians has there been so much misrepresentation and downright humbug as that indulged in by the manufacturers of gluten flours and foods.

The federal standard for gluten flour prescribes that it shall contain at least 35 per cent. protein (5.6 N×

1 Bull. Hyg. Lab., No. 50.

2. THE JOURNAL, Sept. 7, 1910, p. 1021.

6.25). Nothing is said about the starch-content and yet from the standpoint of public health the percentage of starch—or more broadly, of carbohydrates (starch, dextrin, sugar)—is of more importance than the proportion of protein.

As the Food and Drugs Act is now interpreted, an anomalous state of affairs exists. A firm that puts on the market a so-called gluten flour containing 20 per cent. of protein is permitted to label—or, at least, does label—its product "gluten 4/7 standard" because, forsooth, twenty is four-sevenths of thirty-five and 35 per cent. protein is the standard set for gluten flour. The absurdity of this proposition appears when it is remembered that ordinary flour contains from 10 to 11 per cent. of protein and that, on the same grounds it could be legally labeled "gluten ⅓ standard." The fallacy of giving such an interpretation to a law, the primary object of whose enactment was the protection of the public health, is evident.

The important and essential fact is that in ninety-nine cases out of a hundred a gluten flour or a gluten food is prescribed for a diabetic patient, to whom the ingestion of carbohydrates is fraught with danger. Gluten products are prescribed by physicians, not because they are richer in nitrogen (protein) than other foods, but because they are believed to be poorer in, if not actually free from, carbohydrates (starch). Most of the manufacturers of gluten flours and foods in this country carefully avoid stating in their advertising matter or on the labels, what percentage of starch their preparations contain. The reason for the omission is that their products contain dangerously high percentages of carbohydrates. Yet the physician is misled by the term "gluten" into prescribing these worse than worthless preparations for his diabetic patient.

THE RISE AND FALL OF THE SEPTIC TANK

Starting with the famous Exeter experiments of 1895, the treatment of sewage by the septic tank method enjoyed for a period wide popularity among sanitarians. Recently signs have multiplied that the vogue of the septic tank is well-nigh over. Roughly speaking, the principle of the septic tank consists in holding the sewage in bulk under such conditions that anaerobic decomposition occurs and the amount of suspended organic matter is considerably reduced, partly by sedimentation, partly by digestion. For a time it seemed as if this treatment possessed not only the great advantage that the amount of solid matter in the sewage was diminished, but also the advantage that the organic matter was brought into such a state that it could be more readily oxidized. In a word, it was believed that "septic sewage" could be more easily purified by contact beds or by intermittent filtration than crude sewage.

The event has not justified this belief. Some experimenters, finding results at variance with the opinion commonly held, drew the cautious conclusion that it was not necessary to use the septic tank as a preliminary to the purification of sewage by trickling beds or intermittent filtration. Others more frankly confessed to finding the septic tank effluents distinctly harder to treat than crude sewage. Evidence is now at hand which strongly supports the latter contention. It is becoming more and more the practice of the engineers in charge of sewage purification works to shorten the period of holding the sewage in septic tanks until little more than a slight settling out of suspended particles actually occurs. Indeed, the avoidance of septic action has now become an object of serious endeavor, whereas a few years ago it was the aim to further in every way the process of anaerobic putrefaction.

One cause of the now recognized injurious outcome of septic action appears to be that the gases arising from the sludge in the septic tanks dislodge masses of solid matter, both from the bottom and from the surface scum, which pass off into the oxidizing beds, where they produce clogging of the beds and interfere with the oxidizing action. A second disadvantage is the fact, apparently now demonstrated, that the organic matter which has been acted on anaerobically is in even less favorable condition for further destruction than it was in the crude sewage.

All this means that foul sewage cannot be as easily and effectively treated as fresh sewage. It has also been found that septic sewage requires much more chlorin to disinfect it than crude sewage, so that with the hypochlorite treatment the expense of handling the effluent from septic tanks would be notably greater. Altogether the decline of the septic tank as a method utilizable on a large scale seems likely to be as rapid as its rise.

Current Comment

INVESTIGATION OF NORMAL OR AVERAGE HUMAN BEINGS

A recent writer,[1] in connection with the bill to establish a federal laboratory for the study of criminals, remarks that, while the anthropometric study of criminals is desirable, "more important still is the anthropometric study of all sorts and conditions of men. . . . Crime conceived of as a social phenomenon should be studied in connection with the social group, and not merely the individual criminal." Conclusions on this subject, therefore, can be profitably drawn only after consideration of data "derived from large series of observations in connection with the facts of sociology, history and ethnology." This seems like a sane and reasonable suggestion. The exact and scientific study of the criminal at present, while we lack an exact standard of measurement derived from the normal, seems about as promising as would be the study of the path-

1. Lindsey, Edward: Bill to Establish a Criminological Laboratory at Washington, Jour. Am. Inst. Crim. Law and Criminology, May, 1910, p. 103.

ology of any organ concerning whose normal condition only vague and unorganized ideas were available. What is a normal human being? How close an approximation to this ideal type is to be found in the average or ordinary member of society? What deviations from the normal or from the average may an individual present and still be a functioning member of ordinary society? What is the percentage of deviations among the mass of members of ordinary society? When we have reasonably precise answers to a few questions such as these, founded on reasonably extensive and exact observations of unselected material, we shall perhaps be in a better position than at present to judge of the value of the elaborate theories of the nature of the criminal which are offered to us to-day. We shall then have a standard by which to judge of the nature, the degree and the comparative number of the deviations presented by those individuals whom society rejects as detrimental to its structure.

TOMATO CATSUP AND SODIUM BENZOATE

In discussing the use of benzoate of soda as a food preservative the question has almost universally been limited to the manufacture of one product—tomato catsup. This has been due to the fact that probably no other industry offers so wide a field as does catsup-making for the sophistication of foodstuffs by the employment of this preservative. Those who are opposed to the use of this chemical in food have urged that one of the chief objections to it is the fact that it permits the manufacturer to use an inferior grade of material and also to have less regard for cleanliness in making the catsup. The proponents of sodium benzoate, on the other hand, have not only strenuously denied that the use of the chemical would permit such frauds but they have gone still further: they have insisted that the only method by which low-grade tomatoes could be made into presentable-appearing catsup was by the use of the vinegar and spice method of preserving. This seemed to put the matter on debatable ground, but light has been thrown on the point in an eminently practical way. The United States Government has brought suit and obtained judgment in five cases against firms which make a business of using the waste material of canning factories—tomato pulp screened from peelings and cores of tomatoes—for making tomato catsup. In every case the catsup put up by these concerns was labeled as containing benzoate of soda! It is reasonable to suppose that if the only way to make a presentable catsup out of tomato refuse was by means of the vinegar-spice method these concerns would not have used the sodium benzoate method; especially, too, as the term "benzoate of soda" has become more or less of a reproach.

PUBLIC OPINION AND THE PUBLIC DRINKING-CUP

The abolition of the public drinking-cup is a sanitary measure of real importance that has been adopted rather widely within a short time. At least eight states have by statute prohibited the use of the public cup; the boards of health of forty states have recommended its abandonment, and, in addition, numerous city governments have banished the cup from the public schools and parks. This removes from a considerable proportion of the population an undoubted prolific source of danger to public health. But gratifying and important as this fact is, it is not the only source of gratification in this connection. Another feature worthy of comment is the practically unanimous manner in which this measure has been supported and advocated by the public press, and the intelligent manner in which it has been presented to and received by the people. In a large number of press comments, from many states and sections, only one was found which was in any way adverse, and that was only mildly so. This paper said: "The use of public cups or glasses is a practice not wholly nice, and most persons deplore it, still the practice is a matter of one's own personal like or dislike, it would seem." With a little more reflection, this lone objector would see that it is not at all "a matter of one's own personal like or dislike," but distinctly and eminently a matter for public regulation. The hearty support, advocacy and adoption of this measure by health, municipal and school authorities, and by the press and the people, are the best evidence that the importance of sanitary measures is recognized, and that, where reasonable and when properly presented, they will receive the sanction and support of the people, whose best welfare, of course, forms their sole reason for existence.

STATE SOCIETY BUILDS A HOME

After years of homeless wandering, the Rhode Island Medical Society, one of the oldest of our state associations, is about to erect a permanent home and library building, thus realizing the dreams of many of the older members. At the last meeting of the state society, the house of delegates authorized the building committee to purchase, in Providence, a tract of land containing 8,000 square feet. The plot is admirably located, facing the extensive grounds around the state capitol building and bounded on one side by the state normal school grounds. It is near to the union railroad station and is conveniently situated for the members of the state society. Plans are now being made for securing the necessary money for a building. As has been frequently pointed out, either the man or the organization that is homeless is hampered and is prevented from doing the best work possible. The tendency on the part of our state associations and some of the larger local societies to establish permanent homes and to secure buildings of their own is most commendable. Too often, in the past, in our efforts to be of public service, our own interests have been overlooked. It is a cardinal duty of every man, whenever possible, to provide a home for himself and for his posterity. This duty is also incumbent on medical organizations. In no way can the stability of our medical organizations in future years be so well assured as by acquiring real property and erecting permanent homes. This may not be possible or practicable for all state associations, nor even for all of the larger local organizations, but it is a splendid achievement whenever it can be accomplished and greatly strengthens the organization.

Medical News

COLORADO

Personal.—Dr. Charles F. Shollenberger, Denver, has returned from a trip around the world.

State Society Meeting.—The annual meeting of the Colorado State Medical Society was held in Colorado Springs, October 11-13, under the presidency of Dr. Leonard Freeman, Denver. The following officers were elected: president, Dr. Will Howard Swan, Colorado Springs; vice-presidents, Drs. Thomas E. Carmody, Denver; Madison J. Keeney, Pueblo; J. H. Cole, Yampa, and Samuel French, Meeker; secretary, Dr. Melville Black, Denver (reelected), and councilors, Drs. Edgar Hadley, Telluride; Jacob C. Chipman, Sterling; Charles F. Gardiner, Colorado Springs, and Edward A. Whitmore, Leadville, and delegate to the American Medical Association, Dr. Edward Jackson, Denver, and alternate Dr. Howell T. Pershing, Denver. The next meeting of the society will be held in Steamboat Springs.

ILLINOIS

Personal.—Dr. S. S. Wilcox, Charleston, was seriously injured by falling from his carriage recently.——Dr. Alexander F. Stewart, Oneida, has resumed practice after undergoing an operation at Augustana Hospital, Chicago.

Changes at Hospital.—At the annual election of officers of the Graham Hospital, Canton, Dr. Paul S. Scholes was elected president; Dr. Harrison C. Putnam, vice-president, and Dr. Charles N. Allison, secretary. The retiring members were Drs. Willis T. Zeigler, James E. Coleman, and Leroy Chapin. According to the annual report the hospital has had a successful year.

Medical Practice Act Upheld.—The State Board of Health won a victory October 28 when the Supreme Court, in the case of Board of Health vs. Wilson, sustained the validity of the medical practice act, and upheld the contention made by the board that an itinerant vender who sold a medicine accompanied by a circular exploiting the virtues of the remedy, and giving directions for its use, "professed to the public to cure or treat disease," even though he remained mute. The court also held that the State Board of Health is clothed with broad discretionary powers, and that the medical practice act is not subject to the objection that it confers legislative or judicial powers on the State Board of Health. Further the court emphasized its previous rulings that the regulation of the practice of medicine is clearly within the police power of the state.

Conference of Charities and Corrections.—At the meeting of the Illinois State Conference of Charities and Corrections at Galesburg, October 25, that body recommended, among other things, that the two state penitentiaries and the reformatory be placed under the supervision of the state board of administration; that political qualifications be eliminated in appointments and that civil service be established in the several institutions; also that short terms and small salaries be abolished; that the legislature enact an adult probation law, increase the number of parole agents, transform Cook County Hospital for the Insane to a state hospital, establish a true psychopathic hospital in Chicago, and a state inebriate institute, appoint a commission to take the census of the blind in Illinois, furnish more experienced care for the education of the feeble minded, and furnish two state schools for delinquent boys and girls; that infant mortality be studied in Illinois through a committee; that a state board of children's guardians be provided for by law.

Chicago

Fenger-Senn Memorial Lecture.—The council of the Chicago Medical Society, October 8, paid a high tribute to the names of Fenger and Senn, by instituting the "Fenger-Senn Memorial Lecture," to be given annually under the auspices of the society. The sum of $200 was set aside as a fund.

To Study the Insane.—A meeting of physicians of the state was held at the University Club, October 27, and an organization perfected for the study of the diseases of the insane. Meetings will be held from time to time in different cities. Representatives of the medical staffs of the state hospitals attended the meeting.

Urges Teaching of Anatomy and Physiology in Schools.—The Federated Woman's Clubs of Chicago, at a meeting October 27, was addressed by Dr. Rose D. Howe on "The Moral Problems of Education," and passed resolutions advocating a scientific course of anatomy and physiology in the public schools under the instruction of regularly licensed physicians.

Surgical Society Meeting.—At the meeting of the Chicago Surgical Society at the University Club, October 25, which was the occasion of the annual dinner, the following officers were installed: Dr. Jacob Frank, president, succeeding Dr. Arthur Dean Bevan; vice-president, Dr. P. Charles Davison; secretary, Dr. Frederick A. Besley; treasurer, Dr. Dean D. Lewis; and members of the council, Drs. Albert J. Oschner and A. E. Halsted. The first scientific meeting of the year will be held November 10.

To Abolish Midwives.—At the meeting of the Conference of Jewish Women's Organizations, October 27, Dr. Alice Hamilton advocated the abolishment of midwives because they are not properly trained. She said that out of 500 licensed midwives in Chicago, scarcely 30 per cent. are capable and efficient, and one-third are willing to take criminal cases. In this country the license issued to a midwife means nothing. The practice is scarcely controlled at all. We give them the stamp of approval which only deceives those who do not understand.

Two Weeks of Clinics.—During the two weeks from November 7 to 19 a large number of physicians and surgeons of the city will hold clinics in the various medical schools and hospitals for the benefit of visiting physicians. A regular schedule of daily clinics has been prepared. A number of social affairs will also be provided for the entertainment of physicians during this time. An information bureau will be maintained at the LaSalle Hotel; full details may be obtained by calling there or by writing to Dr. Franklin H. Martin, 103 State street, Chicago.

Medical Health Officers Organize.—The Chicago Medical Health Officers' Association, composed of ninety-five graduate physicians employed in the City Health Department, was organized October 28. The following officers were elected: president, Dr. John A. Riley; vice-president, Dr. F. S. Windell; secretary, Dr. A. H. Jones, and treasurer, Dr. W. H. Falkenstein. The meeting deplored the small salaries paid city health officers, whom they assert are the poorest paid employees under the civil service. They also pledged hearty support to Health Commissioner Evans in his fight against contagious diseases.

INDIANA

Memorial Hospital.—The Gilbert Memorial Hospital of Evansville will be ready for occupancy Feb. 11, 1911. It will be four stories in height, built of reinforced concrete, and cost $50,000. Dr. W. H. Gilbert will be the surgeon in charge.

Drug and Liquor Legislation.—The State Board of Pharmacy of Indiana, at its annual meeting at Indianapolis, October 23, selected a committee to devise more stringent laws to regulate the sale by druggists of intoxicating liquors and deleterious drugs.

Diphtheria.—An epidemic of diphtheria has closed the schools at Loogootee, and the State Board of Health has put Dr. W. E. Shimer in charge of the situation. Out of 194 throat cultures, eighty patients were found to have the germ of diphtheria present.

District Society Election.—At the semi-annual meeting of the Thirteenth District Medical Society, held in Rochester, October 18 and 19, Dr. Irvin J. Becknell, Goshen, was elected president; Dr. William H. Thompson, Winamac, vice-president, and Dr. C. Norman Howard, Warsaw, secretary (reelected). The next meeting will be held at Elkhart.

Deaths from Diarrheal Diseases.—The City Board of Health of Indianapolis has prepared a statement for the four summer months of 1910 of the deaths of infants due to digestive diseases. Of a total of 156 deaths, a personal investigation was made of 135. Of this number only thirteen were fed on mother's milk, while 122 had been given baby food, bottled milk, canned corn, etc. The statements emphasize again that the bottle-fed baby is less resistant to disease than the breast fed.

Arrest of Medicine Venders.—Dr. George D. Colburn of Toledo, Ohio, was arrested at Logansport on the charge of peddling medicine without a license. He was fined $50 and permitted to leave the city on a suspended sentence. A Dr. William Hope of Indianapolis was also arrested at Logansport on October 8 for peddling medicine without a license. The local medical society has asked a change of venue, as Mr.

C. H. Stewart, the special judge, is an Eddyite, which is prejudicial to justice when the science of medicine is involved.

Preventing Ophthalmia Neonatorum.—A committee of the Indiana State Medical Society, in a meeting at the State House October 20, of which Dr. George Keiper of Lafayette was chairman, has advised the passing of a law making it compulsory on the part of attending physicians to use the Credé treatment on each infant at birth. The penalty for failure to comply will be revocation of license. It has been estimated that one-third of the total number of blind persons in the state of Indiana have lost their sight on account of the failure of the obstetrician to use this method of treatment.

Personal.—Dr. J. E. Talbot of Ruth, Nev., has moved to Indianapolis to practice.——Dr. J. I. Rinne has moved from Indianapolis to Lapell.——Dr. Urbana Spink, Indianapolis, sailed for Europe October 15 for study.——Dr. Lewis R. Thompson, Jr., of Lafayette, has been appointed an assistant surgeon in the United States Public Health and Marine-Hospital Service.——Dr. Charles C. Haskell, Indianapolis, who has been in New York for 3 months studying diseases of infants, has returned.——Dr. Edward A. Willis, Indianapolis, has been appointed guardian for Dr. Henry B. Fitts, U. S. Navy, retired.——The State Board of Medical Registration and Examination decided on October 18 that the charges made by Dr. Eli L. Schlatterback, health officer of Ligonier against Dr. Max C. Van De Venter and wife did not contain sufficient facts on which to base action.——At the same session the charges against William M. Thompson, Ligonier, were summarily dismissed by the board, and a license to practice was issued Dr. Thompson.

IOWA

Personal.—Dr. Joseph W. Armstrong, Des Moines, was seriously injured while on a hunting trip in northern Minnesota, October 18.——Dr. William W. Hunter, Monticello, who has been seriously ill, is now convalescent.

Epileptic Colony Needed.—The State Board of Control has sent out circular letters asking that concise statements be sent to the board giving the number of cases of epilepsy in the various localities in the state. The superintendent of the Mount Pleasant State Hospital believes there are 4,000 epileptics in Iowa, that 10 per cent. of these become insane, and that 3 per cent. commit crimes. The board urges that an epileptic colony be established in Iowa similar to the Craig Colony at Sonyea, N. Y.

KANSAS

Students to be Vaccinated Against Typhoid.—Dr. Mervin T. Sudler, head of the Medical Department of the University of Kansas, announces that all students who so desire may be vaccinated against typhoid fever free of charge.

Infected with Rabies.—Dr. William K. Trimble, bacteriologist of the University of Kansas, Medical Department, Rosedale, was infected with rabies, October 20, while making an examination of the brain of a dog sent to the laboratory for diagnosis.

Medical Department to be Moved.—The regents of the University of Kansas are reported to be seriously considering the removal of the medical department now located in Rosedale to some other city, possibly Kansas City, Kan., which has more abundant hospital facilities.

KENTUCKY

Personal.—Dr. John Todd has been elected health officer of Newport.——The residence of Dr. William D. Howe, Carlisle, was destroyed by fire, October 13, with a loss of about $10,000 partially covered by insurance.

Visiting Staff Organized.—The visiting staff of the City Hospital, Louisville, met October 18, to form a permanent organization. Dr. Joseph B. Marvin was chosen chairman of the meeting and Dr. Henry Enos Tuley, secretary. Dr. J. W. Fowler, superintendent of the hospital, delivered an address, explaining the object of the meeting.

Testimonial to Dr. Bodine.—In appreciation of the devotion and services to the interests of the Medical Department of the Louisville University of Dr. James Morrison Bodine, its dean and president of the faculty for 45 years, his many friends and pupils have arranged for a testimonial dinner to Dr. Bodine at the hotel Seelbach, Louisville, December 16. Dr. Bodine is now in his 80th year and is still active in the cause of medical education. Dr. Lewis S. McMurtry is chairman of the committee on arrangements.

LOUISIANA

Charity Bed Endowed.—The first charity bed in the Presbyterian Hospital, New Orleans, has been endowed by the widow and children of Mr. Charles Weiss, in his memory.

Refuse New Trial.—It was announced October 18 that the supreme court had refused a new trial to Dr. Emmett C. McKowen, Jackson, charged with the murder of E. K. Judson, a patient in the State Asylum for the Insane, Jackson.

Sanitarium Transferred.—The formal transfer of the New Orleans Sanitarium property to the Presbyterian Hospital was made October 5. The new management intends to install a free clinic at once, and a little later free wards will be opened.

Noted German Physician in New Orleans.—Prof Dr. E. Grawitz, Berlin, who has been visiting in New Orleans, lectured, October 14, before Tulane Medical Department on "Pernicious Anemia, Its Definition and Treatment," and on the following evening before the Orleans Parish Medical Society on "The Causes of Leukocythemia."

Personal.—Dr. James M. Adams, St. Joseph, president of the Tensas Parish Board of Health, has resigned and has been succeeded by Dr. Louis A. Murdock.——Dr. Frederick J. Mayer, New Orleans, formerly special medical inspector of the State Board of Health of Louisiana, sailed for Liverpool from Galveston, October 5. He is making the trip in the interest of the State Board of Health of Texas.

MARYLAND

Personal.—Dr. Edson M. Glidden, assistant superintendent of the Maryland Tuberculosis Sanatorium, has resigned that office to become superintendent of the new Georgia State Tuberculosis Sanatorium.

Hagerstown Hospital.—The plans and specifications for the new hospital building, to be erected in Hagerstown, under the supervision of Dr. Henry M. Hurd, superintendent of Johns Hopkins Hospital, have been completed. It is for the Washington County Hospital Association, and the cost of construction will be about $75,000. It will be two and three stories high, of brick, stone and stucco and will be fireproof.

Washington County Health Report.—Dr. J. E. Pitsnogle, health officer of Washington County, reports expenses of the year $2,320. There were 795 deaths and 1,062 births (males 546, females 516). Many school buildings are said to be improperly ventilated and overcrowded. The teachers are complying with the vaccination law. Child labor permits were issued in 300 cases and 40 refused on account of educational or physical defects. He urges a compulsory education law, appointment of a food and meat inspector, a health officer in every election district, and that the county health office be taken out of politics. Hagerstown is in this county.

Baltimore

Address to Medical Students.—Dr. Charles P. Emerson, superintendent of the Clifton Springs Sanatorium, New York, and formerly resident physician of the Johns Hopkins Hospital, addressed the students of Johns Hopkins Medical School, October 28, on the good medical students can do by working in conjunction with charity organizations. Dr. Emerson organized the Social Service Department of the Johns Hopkins Medical School.

University Graduate Assassinated.—News has been received at the University of Maryland of the assassination of Dr. Taoufik T. Rassey, of Singa, Soudan, a surgeon in the Egyptian army, who graduated at the institution in 1902. A native ran a sword through his back, penetrating his right kidney and intestines and lodging against the ileum. There was no other medical man at the post to render assistance, and he lived but a few hours. He did not know his assailant or any reason for the assault. Dr. Rassey distinguished himself while a student here and stood high in his native country.

MASSACHUSETTS

Personal.—Dr. Allen G. Rice has been elected school inspector of Springfield.——Dr. Eliza J. Dadmun, Boston, has returned from Vienna.

State Society Proceedings.—At the regular meeting of the Council of the Massachusetts Medical Society, October 5, Dr. Orland J. Brown, North Adams, was elected delegate to the Vermont Medical Society, and Drs. Daniel E. Keefe, Springfield, and Elliot P. Joslin, Boston, were elected delegates to the Medical Society of the State of New York. Dr. Charles H.

Cook, Natick, gave a report of the meeting of the National Legislative Council of the American Medical Association with particular reference to the value of a national department of health. Dr. Walter P. Bowers, Clinton, was elected to succeed Dr. George W. Gay, Boston, as a member of the committee on state and national legislation. It was voted to revise the list of medical colleges and schools whose diplomas should be accepted by the Massachusetts Medical Society. Attention was called to the power of the Massachusetts Medical Society to regulate medical expert testimony as provided by its present by-laws. Dr. Horace D. Arnold, Boston, made a report of the last meeting of the House of Delegates of the American Medical Association at St. Louis, and dwelt on its great value to the constituent state societies.

MICHIGAN

Personal.—Dr. James A. Ashbaugh has been reelected president of the medical staff of the Hotel Dieu, Detroit.——Dr. Silas B. Frankhauser, Hillsdale, has been reelected physician of Hillsdale County.

Leper's Children May Attend School.—The State Board of Health has decided that the four children of Maurelius Jensen, a Calumet resident afflicted with leprosy, may attend the public schools without being a menace to public health. They will be kept away from their parents during the school term.

New Society Officers.—The Detroit Oto-Laryngological Society, at its meeting held October 18, elected Dr. Ernest L. Shurly, president, and Dr. Emil Amberg, secretary-treasurer. Dr. Shurly, in his address, urged a broader conception of specialism.——At the annual meeting of the Huron County Medical Society, held in Bad Axe, October 10, Dr. Frank E. Luton, Kilmanagh, was elected president; Dr. Alford E. W. Yale, Pigeon, vice-president; Dr. Daniel Conboy, Bad Axe, secretary-treasurer; Dr. Bernhard Friedlander, Sebewaing, delegate to the state medical society, and Dr. Dugald D. Munro, Kinde, alternate.——Tuscola County Medical Society, at its annual meeting, held in Caro, October 12, elected Dr. James H. Hays, Cass City, president; Dr. Albert J. Howell, Deford, vice-president, and Dr. Wynne C. Garvin, Millington, secretary-treasurer.

MISSOURI

Honor Old Member.—The Ralls County Medical Society held its meeting in Center, October 20, in honor of Dr. Nathan A. Foster, who has been practicing in that place for 50 years.

Hospital for Negroes.—The colored population of Springfield have decided to build and maintain a hospital for negroes, to be known as the Dunbar Hospital. An association has been organized to collect the necessary means.

Open Clinics to All.—A resolution has been adopted by the common council of Kansas City directing the hospital and health board to admit representatives of all schools of medicine and surgery to the clinics at the Kansas City General Hospital.

License Restored.—Dr. W. Earl Williams, Higbee, whose license was revoked by the State Board of Health on account of failure to comply with the regulations regarding the prescribing of liquor, is said to have had his license restored by that body.

Board of Charities to Meet.—The State Board of Charities and Correction will hold a meeting in Chillicothe, November 11 and 12. On the evening of November 11 the subject for discussion will be tuberculosis in the state. The St. Louis Commission on Tuberculosis will send its exhibit to this meeting.

Jefferson Alumni in Missouri.—Missouri graduates of Jefferson Medical College have organized the Jefferson Alumni Association of Missouri, with provision for corresponding members in Illinois, and invite the alumni of Jefferson in these states to become members. Dr. William Porter, St. Louis, is president and Dr. A. T. Muench, St. Louis, secretary.

Personal.—Dr. Guy L. Noyes has been made medical inspector of the public schools of Columbia.——Dr. Carlos C. English, Kansas City, has been appointed first assistant physician at the State Sanatorium for Tuberculosis, Mount Vernon, vice Dr. George W. Orrick, resigned.——Dr. and Mrs. Francis R. Anthony, Maryville, have located for the winter in Vienna, Austria.

St. Louis

Tuberculosis Research Society Organized.—A research society devoted to the investigation of tuberculosis and its complications has been organized in St. Louis with the object of investigating and reporting on the different phases of the disease. Clinics and hospitals will be searched for material suitable for research work.

Personal.—Dr. Llewellyn P. Williamson has reentered the medical corps of the army and is stationed at Fort D. A. Russell, Wyo.—Dr. Leo Loeb has entered on his duties as director of the research department of the Barnard Free Skin and Cancer Hospital. He is aided by his two former assistants, Drs. Mayer L. Fleisher and O. Ishii.——Dr. Walter C. G. Kirchner has returned from Europe.

Hospital Staff Appointed.—The hospital board has selected the visiting staff for the public hospitals. The fitness of the applicants was based entirely on professional attainments and standing, political influence being absolutely ignored. No one could be considered who had been in practice less than five years. The appointments follow:

Medicine.—O. H. Brown, H. J. Cummings, George Dock, William P. Elmer, William Engelbach, L. S. Luton, George Richter, John Salter.

Surgery.—E. A. Babler, Willard Bartlett, Vilray P. Blair, Ernst Jonas, W. E. Leighton, Max W. Myer, Louis Rassieur, Francis Reder.

Gynecology and Obstetrics.—H. S. Crossen, A. N. Curtis, Hugo Ehrenfest, George Gellhorn, Percy Swahlen, Fred J. Taussig.

Ear, Nose and Throat.—William D. Black, H. W. Loeb, C. F. Pfingsten, Roy P. Scholz.

Eye.—John Green, Jr., J. Ellis Jennings, Clarence Loeb, Ernst Saxl, Nathaniel M. Semple.

Oral Surgeons.—J. P. Harper, D.D.S., Virgil Loeb.

Children's Diseases.—J. R. Clemens, Aaron Levy, Gustav Lippmann.

Genito-Urinary.—C. E. Burford, J. W. Marchildon, William M. Robertson, Henry J. Scherck.

Deformities (Orthopedics).—Nathaniel Allison.

Neurology.—M. A. Bliss, C. G. Chaddock, W. W. Graves, M. W. Hoge, Sidney I. Schwab.

Skin.—M. F. Engman, J. J. Houwink, W. H. Mook.

X-Ray.—R. D. Carman, Fred B. Hall.

In addition to the above appointments, the following members of the temporary staff will fill out their terms:

Medicine.—Elsworth S. Smith, Jr., Carl J. Luyties, G. C. Crandall.

Surgery.—M. G. Seelig, Willis Young.

NEBRASKA

Alumni Week.—The first celebration of alumni week of the College of Medicine of Nebraska University was held during the past week. An interesting program of medical papers and clinics at the hospitals and the college was carried out and the social features were not forgotten.

NEW YORK

Health Officers' Conference.—The conference of Sanitary Officers of the State of New York will be held at Buffalo, November 16-18.

Personal.—Dr. Robert T. Irvine, health physician of Ossining and physician to Sing Sing prison, was very seriously injured in an automobile accident, October 25.

Poliomyelitis.—According to the recent report of the State Department of Health, there have been 146 cases of infantile paralysis in this state since May 1. Thirty-one of these resulted fatally. During September ninety-two cases, with sixteen deaths were reported.

Typhoid Below the Average.—The report of typhoid conditions in New York state, which Governor White requested, has been submitted by Dr. Porter and shows that the mortality for the year 1910 is about 10 per cent. less than the previous normal rates. Yonkers and Niagara Falls have had an unusual number of cases.

The First District Branch Meets.—The fourth annual meeting of the First District Branch of the Medical Society of the State of New York was held in Newburgh, Thursday, October 27. The following officers were elected: president, Dr. W. Stanton Gleason, Newburgh; vice-president, Dr. H. D. Hardenbergh, Middletown; secretary, Dr. Charles Ellery Denison, New York City; treasurer, Dr. James E. Sadlier, Poughkeepsie. The 1911 meeting will be held at Tuxedo Park.

New York City

Harvey Society Lecture.—The second lecture of the Harvey Society course, delivered by Prof. W. E. Castle, Harvard University, November 5, is on the subject "Unit Characters in Heredity."

Another Case of Cholera.—The Italian liner Taormina from Genoa, which arrived at quarantine, October 21, was held over for several days because of a death during the voyage which the ship's doctor believed to be due to cholera.

Trains Must Not Pollute Water Supply.—The New York Central Railroad has been informed by the water pollution committee of the Merchant's Association that trains may be efficient carriers of typhoid and asks that the railroads close the toilets while trains are within the Croton Watershed.

To Enlarge Hospital.—The Manhattan Eye, Ear and Throat Hospital has secured a plot of ground at the southeast corner of Third Avenue and Sixty-Fourth Street where it is proposed to build an addition to the hospital.——Two extensions to the three-story hospital and school on Randall's Island are to be erected at a cost of $40,000. These extensions are to be used as playrooms.

To Aid Health Department.—Health Commissioner Lederle has secured the assistance of three physicians and two college professors to act as an advisory board of statisticians to the Health Department. Their services are to be gratuitous. These assistants are Dr. Roger C. Tracey, formerly a registrar of the Health Department; Dr. William S. Guilfoy, the present registrar; Dr. Cressy L. Wilbur, Professor C. E. A. Winslow, formerly of the Massachusetts Institute of Technology, and Professor Walter L. Wilcox, professor of economics at Cornell. This board plans for better computation of health and mortality statistics.

Buffalo

Personal.—Dr. James P. Barr was injured recently in a collision between his automobile and a trolley car.——Dr. Harvey R. Gaylord has returned from Europe.

Health Department to Supervise Insane.—Hereafter the Department of Health will have supervision of the detention of the insane instead of the police department. This means that the unfortunate insane will not be detained in police stations or regarded as criminals or indigents, but more humane and scientific treatment will be given them at first hand.

NORTH CAROLINA

Contributing Editors to Bulletin.—The Secretary of the North Carolina State Board of Health announces the following list of contributing editors to the *Bulletin:* Governor W. W. Kitchin, Raleigh; Hon. A. H. Eller, Winston-Salem; Hon. E. W. Sikes, Wake Forest; Hon. W. C. Dowd, Charlotte; Mr. Clarence Poe, Raleigh; Mr. Archibald Johnson, Thomasville; Rev. George W. Lay, Raleigh; Dr. Henry L. Smith, Davidson; Dr. Francis P. Venable, Chapel Hill; Dr. W. P. Few, Durham; Dr. William L. Poteat, Wake Forest; Prof. F. L. Stevens, Raleigh; Dr. Cyrus Thompson, Jacksonville; Dr. Charles O. H. Laughinghouse, Greenville; Dr. Lewis B. McBrayer, Asheville; Dr. Benjamin K. Hays, Oxford; Dr. Edward J. Wood, Wilmington; Dr. William DeB. MacNider, Chapel Hill; Dr. Hubert A. Royster, Raleigh, and Dr. James L. Nicholson, Richlands. The condition imposed is that the acceptance of the position of contributing editor shall be understood to mean that each individual so honored shall furnish at least one thousand words annually to the pages of the *Bulletin.*

PENNSYLVANIA

Money Collected for Tuberculosis Society.—The receipts of the house-to-house collection in Reading for the Berks County Tuberculosis Society aggregated $9,524.

Infantile Paralysis in the State.—Since the first of July 1,018 cases of infantile paralysis have been reported to the authorities. However, there has been a marked decrease in the number of cases since the advent of cooler weather.

Sanatorium Burns.—The Inwood Sanatorium just outside the borough of West Conshohocken, in lower Merion, was destroyed by fire October 23. The loss will probably reach $60,000. The seventy-five women under treatment in the institution escaped injury.

Philadelphia

Age of Dr. Shoemaker.—The age of the late Dr. John Veitch Shoemaker, noted in THE JOURNAL, October 22, page 1485, was 58 instead of 52.

Gift to Hospital.—The Frederick Douglas Memorial Hospital and Training School for Nurses, announced October 24, a gift of $1,000 from Henry Phipps.

New State Laboratory.—The Department of Health of Pennsylvania has leased the entire building at 2000 Arch Street for use as a biologic laboratory.

Cholera Suspects Captured Elsewhere.—Cholera suspects, who landed in Philadelphia on the steamship Taormina, from Italian ports, and who escaped detention here, are held in Cincinnati, Youngstown, O., and Schenectady, N. Y.

Milk Commission Named.—Mayor Reyburn October 24 appointed the following commission to investigate the milk supply of the city: Dr. Charles Lincoln Furbush, chairman; Drs. Charles B. Penrose, Henry Leffman, Randle C. Rosenberger, Clarence J. Marshall, and Samuel M. Hamill.

Orthopedic Club Visits University.—The Inter-Urban Orthopedic Club of the United States visited the University of Pennsylvania on Saturday, November 5, as the guests of Dr. James K. Young. After the inspection of the orthopedic department, the *x*-ray laboratory and the new laboratory buildings of the medical school, they were taken by their host to the Widener Memorial Home, where they were entertained at luncheon by Dr. George D. Widener.

University Adds Course in Sanitary Engineering.—The new course in public health, which has been inaugurated at the University of Pennsylvania under the auspices of the engineering department and the laboratory of hygiene, is being developed rapidly. This course was begun as the result of the demand for the services of trained men as public health officers. It embraces sanitary engineering; public water supplies; the designing of hydraulic works; proper disposal of waste and sewage; the inspection of meat, milk and other animal products; personal and general hygiene, and lectures on sanitary legislation.

Exhibit on Infant Life.—Director Neff is having an exhibit on infant mortality and infantile paralysis prepared for display at the American Association for the Study and Prevention of Infantile Paralysis, to be held in Baltimore, November 9-11. A part of the exhibit will also be displayed at the conference of city officials on charities and corrections to be held in Altoona, November 16, and subsequently the whole display is to be exhibited in this city in a building which is to be loaned for the purpose by Felix Isman. The exhibit includes innumerable charts showing the bearing that humidity, temperature, housing conditions, congestion and numerous other phases of physical welfare may have in relation to infant growth and life.

Personal.—Dr. Ralph Butler has been appointed chief of the laryngologic and aural department of the German Hospital, succeeding the late Dr. Barton H. Potts.——Dr. James A. Babbitt has been appointed to the position in the dispensary left vacant by the promotion of Dr. Butler.——Dr. Alexander C. Abbott, professor of hygiene and bacteriology in the University of Pennsylvania, and director of the laboratory of hygiene, will deliver lectures at the University of Maryland, November 9 and 10.——Dr. Charles Hunsinger is seriously ill in Jefferson Hospital.——Dr. John A. McGlinn has been elected clinical professor of obstetrics in the Medico-Chirurgical College.——Dr. Charles M. Burk was operated on in the German Hospital, October 26, for intestinal trouble and is in a serious condition.——Drs. James G. Mumford, of Boston, and Edward N. Brush, of Towson, Md., read papers at the stated meeting of the College of Physicians, November 2.

VERMONT

Physician Elected Governor.—Lieutenant-Governor John A. Mead, Rutland, a retired physician, was elected governor of the state on the republican ticket by a plurality of about 17,000.

Medical Club Elects.—At the annual meeting of the Rutland Medical and Surgical Reporting Club, September 20, Dr. Mark R. Crain was elected president; Dr. William W. Townsend, vice-president, and Dr. Ray E. Smith, secretary.

State Society Meeting.—The Vermont State Medical Society held its ninety-seventh annual meeting in St. Albans, October 13 and 14, and elected the following officers: president, Dr. Henry C. Tinkman, Burlington; vice-president, Dr. Stephen W. Paige, St. Albans; secretary, Dr. Clarence H. Beecher, Burlington (reelected); treasurer, Dr. Bingham H. Stone, Burlington (reelected); auditor, Dr. Anson M. Norton, Bristol (reelected); anniversary chairman, Dr. Schuyler W. Hammond, Rutland; and delegates to medical societies: American Medical Association, Dr. James N. Jenne, Burlington; to Connecticut River Valley Medical Association, Dr. William N. Bryant, Ludlow; to White Mountain Medical Association, Dr. Clinton J. Rumrill, Randolph; to White River Valley Medical Association, Dr. William Lindsay, Montpelier; to Maine State Medical Society, Dr. Mark P. Stanley, White River Junction; to New Hampshire Medical Society, Dr. Fred T. Kidder, Woodstock; to Massachusetts Medical Society, Dr. Edward M. Crane, Hardwick; to Connecticut Medical Society, Dr. Patrick E. McSweeney, Burlington; to Rhode Island Medical Society, Dr. Clayton W. Bartlett, Bennington;

to Medical Society of the State of New York, Dr. William W. Townsend, Rutland. The House of Delegates elected the following officers: president, Dr. John P. Gifford, Randolph; vice-presidents, Drs. William W. Townsend, Rutland, and T. Frank Gartland, White River Junction, and secretary, Dr. Lyman Allen, Burlington. The treasurer reported a gift of $1,500, the income of which shall be paid annually in October to the treasurer of the society for the purpose of establishing a lectureship, and providing for a speaker to be appointed by the president, for each general meeting on either sanitary science or general medicine.

VIRGINIA

County Societies May Unite.—At the regular quarterly meeting of the Northhampton County Medical Society, held in Cape Charles, October 6, the question of the merger of the Northampton and Accomac County societies was favorably considered, and Dr. John H. Ayers, Accomac, was elected temporary chairman of the organizing committee.

Personal.—Dr. C. C. Hudson, Richmond, has been elected medical examiner of the health department, vice Dr. W. Brownley Foster, resigned, to become chief health officer of Roanoke.——Dr. Roy K. Flannagan, Charlottesville, has been appointed director of inspection for the state health department.——Dr. Powhattan S. Schenck has been appointed health commissioner of Norfolk, vice Dr. Henry R. Dupuy.——Dr. Charles J. Andrews has been made assistant health commissioner in charge of the bacteriologic work of the department, vice Dr. Edward C. S. Taliaferro.——Dr. John A. Johnston, chief surgeon at the National Soldiers' Home, has resigned. ——Dr. Elisha Barksdale, city physician of Lynchburg, underwent operation at the German Hospital, Philadelphia, recently for infected glands of the neck.

WISCONSIN

Gift to Hospital.—Miss Moyca Newell, New York City, has donated $10,000 to the endowment fund of the Kenosha Hospital as a memorial to her parents, the late Mr. and Mrs. Frederick Newell, pioneer residents of Kenosha.

Personal.—Dr. Frederick A. Kraft, formerly a member of the fire and police court, has succeeded Dr. William Colby Rucker as health commissioner of Milwaukee.——Dr. Ben C. Britt, Green Bay, has been appointed surgeon at the Veteran's Home, Waupaca, vice Dr. Bartholomew Bantley, resigned.——Dr. William Lorenz, formerly of Kankakee (Ill.) State Hospital, has been appointed assistant superintendent of the Wisconsin State Hospital, Mendota.

GENERAL NEWS

Alumni Association to Meet.—The annual meeting of the Alumni Association of the Lying-in Hospital of the City of New York will be held November 9, at the Harvard Club. Dr. J. Whitridge Williams, Baltimore, will read a paper entitled "My Experience in Labor Complicated by Contracted Pelvis."

Army Examination.—Seventy-six physicians are wanted for the U. S. Army. Applicants must be citizens, between 22 and 30 years of age, graduates of reputable medical schools, and must have had one year's hospital training or its equivalent, in practice subsequent to graduation. Examinations will be held Jan. 15, 1911, at various points throughout the country, and full particulars may be obtained from the Surgeon General of the Army, Washington, D. C.

Meeting of Military Surgeons.—At the annual session of the American Association of Military Surgeons, which met in Richmond, Va., this week, the following officers were elected: president, Surgeon-General George H. Torney, of the Army; vice-presidents, Surgeon Charles P. Wertenbaker of the Marine Hospital Service, Surgeon William C. Braisted of the Navy, and Colonel Charles Adams, Chicago, Surgeon General of Illinois; treasurer, Major Herbert A. Arnold, N. G. Pa., Ardmore, reelected.

FOREIGN NEWS

The Recent International Gynecologic Congress.—The fifth international congress of obstetrics and gynecology convened at St. Petersburg, September 22, with 800 registered members. It was the first international special congress that has been held on Russian soil, and twice it had to be postponed on account of war, political unrest or epidemics. The German gynecologists took the leading part in the transactions, Martin, Bumm, Döderlein, Winter and Sellheim reading addresses and a number of others taking part in various ways. Italy was represented by Pestalozza, editor of *Ginecologia*, and Mangiagalli, Mexico by Barreiro and France by Jayle, Le Filliatre and Abadie, Great Britain by Simpson and others, with Fontoynont from Madagascar, van de Velde from Holland and the representatives from the United States. Austria was not officially represented, owing to the five-day quarantine now enforced on account of cholera. An interesting sketch of the meeting by W. Beckmann in the *St. Petersburg med. Wochenschrift* just received comments on the proceedings that they brought out nothing materially new, although they demonstrated much industry and research on the part of the participants. When the subject of "Cesarean Section" was placed on the order of the day it was still open to discussion, but experience has demonstrated that the newer extraperitoneal technics have not proved adapted for infected cases, as was hoped at first, and consequently they have become merely a modification of the technic of the classic section. The unanimity on this point was so complete as to be touching, he declares, and extremely monotonous. The discussion of "Non-Operative Treatment of Cancer of the Uterus" showed that no definite progress had been realized by the tentative work done on all sides, and that certain forms of serotherapy had done direct harm. The general impression from the discussion was an encouragement to try various measures, cauterization and excochleation more energetically, without giving up the hope of more radical measures if conditions can be improved to permit. Fulguration and electrocongelation received only tepid endorsement from the speakers. The third subject on the program, the "Vaginal Route in Accouchement and Gynecology," gave the president of the congress, Professor von Ott, an opportunity to display his brilliant mastery of the vaginal technic, as shown in his own work and that of his pupils who have compiled, analyzed and sifted his entire material. The demonstrations on patients and the long records of successes will certainly, Beckmann is convinced, tend to increase the interest in the vaginal route, which seems to have declined somewhat during the last few years. No one appeared at the congress to discuss the subject, "Influence of the Nervous System in the Origin and Control of Uterine Hemorrhage," which had been placed on the order of the day at the request of the British committee. The question of "Treatment of Displacements of the Uterus" elicited a lively discussion, as Sellheim and von Knorre deprecated operative measures, while Dützmann and others reported excellent results from them. Fränkel's communication on the functions of the corpus luteum, based on over 400 experiments, aroused much interest, as also Abadie's report of the successful formation of a vagina out of a loop of small intestine. Spinal anesthesia found an ardent advocate in Le Filliatre, who performs operations even on the jaws with this technic and does not use inhalation anesthesia at all any more. But Abadie denounced the spinal technic so savagely that it almost made his hearers resolve to refrain from this technic henceforth. The program listed seventy-one communications and twenty demonstrations, and the organization of the congress was acknowledged to be flawless, thanks to the efforts of Professor von Ott and the secretary, Professor Sadovski, to whom the rest of the committee of organization seem to have left all the work. Russian hospitality to invited guests is proverbial, and its reputation was sustained on this occasion. The special features of the congress were mentioned in these columns July 23, 1910, page 324.

Ehrlich's Arseno-Benzol (606) in Syphilis.—An entire session of the recent German Naturforscher Congress was devoted to this new remedy; Ehrlich's own report was summarized in the Berlin Letter on page 1483. Neisser said that the destructive action of the drug on the spirochetes not only shortened the treatment of syphilis but would certainly aid in restricting the spread of syphilis by promptly reducing the danger of contagion from the infected, although, he added, reinfections would be observed probably more frequently. He advised not to abandon the tried method of chronic treatment of the infection although presumably it will not be necessary to keep up the old technic of seven or eight courses in the 3 to 5 years after infection. The serologic test may reveal those who do not need continued treatment, but this is not always reliable as experience has shown that after numerous negative responses the reaction may become positive and symptoms may recur. Expectant waiting in these cases would lose the ground already won. The question now is whether the continued treatment, if deemed necessary, should be intermittent or continuous. The system may become accustomed to the drug and the spirochetes may become drug-proof,

while, on the other hand, with continuous treatment the special properties of the drug may display their best action. Early and energetic treatment with "606" in every case of syphilis he regards as a duty now, and he does not rely on a single injection but repeats the 0.6 gm. dose after 3 or 6 weeks, sometimes interposing mercurial treatment. Alt expressed the hope that the symposium would be followed by a period of silent and extremely careful study of the new remedy to prevent any possible bad harvest that might throw discredit on Ehrlich's precious seed. He said that 75 per cent. of the mishaps reported to date might have been avoided by more scrupulous heeding of the directions as to doses, solution and administration. He stated that the drug not only kills all the accessible, fully developed spirochetes but it loosens up and induces hyperemia, local leukocytosis and a kind of inflammation in the syphilitic tissues and accumulations. When this process occurs in an enclosed space, as in the skull, the changes may entail transient symptoms of irritation or even paralysis. With syphilitic and parasyphilitic brain affections, slight sensory and motor symptoms may thus occur but they generally prove transient. When paresis is so well developed that the untrained eye can recognize it, the affection has progressed beyond relief from any drug; benefit can be anticipated only during the "heat lightning symptoms" stage. Especially in incipient taboparalysis the prospects are good for treatment with "606." Cerebral syphilis, he continued, is a very convincing and grateful field for the new drug but large doses should be avoided and the patient should be treated with as much caution as an epileptic with impending status epilepticus. The early forms of tabes have been much benefited in his experience; some of his tabetic patients treated last February and March have been freed to date (September) from their former attacks of pains. The effect of mere suggestion would probably have worn off long ere this. One of his patients with pronounced ataxia last March took part in the recent parade of veterans, marching with the best of them. He warns that tabetics are often in the habit of taking sedatives of various kinds and these must be reckoned with or untoward complications may result which might erroneously be attributed to the "606." Wechselmann denounced the statement recently made that the "606" is equivalent to two doses of calomel, and reported a case in which the former apparently cured completely malignant syphilis which had resisted for 4 years numerous calomel and other mercurial and arsenical courses. The ulcerations on the penis had healed over only once and for a few days during the entire 4 years. After three injections of the "606" in the course of 4 months (0.25, 0.45 and 0.45 gm.) every process has healed and the patient's earning capacity has been entirely restored. He excludes from the treatment persons with flabby, weak myocardium, such as is often encountered in tabetics; fever and an eruption are liable to follow the injection of the new drug when the heart is weak from any cause, although this reaction always subsided harmlessly in 2 or 3 days in his cases. No injury of the optic nerve from the new drug has been observed to date, he stated. Local necrosis has developed more frequently in his later series of cases; it appeared after 2 or 3 weeks and proved extremely indolent. Some of the tissues are still capable of recuperating so that active measures are contraindicated in treatment. Ehrlich called attention to the local necrosis observed after injection of the remedy in the breast of fowls; certain tissues seem more susceptible. In conclusion Wechselmann declared that the efficacy of the new drug has been proved by the experiences to date while its dangers have proved less than had been anticipated at first. Orth reported similar experiences with local necrosis in the buttocks after injection of "606." In the first case death followed the 10th day after the injection but the tissues were bacteriologically sterile and there was no suppuration. In the second case the patient died from cancer in the throat 6 weeks after the injection; the necrotic patch still showed the yellow field around a hemorrhagic center characteristic of this necrosis. Miekley observed transient arsenic melanosis in an infant with inherited syphilis, but otherwise had no by-effects of consequence to relate from his 157 cases. Margulies reported extensive research with the new drug which has confirmed the fact that the principle of complete sterilization by a single large dose can be successfully applied in all the trypanosome affections studied. Further, the spirilla do not become accustomed to the drug so that equally effectual action may be anticipated with fractioned dosage in spirilla affections. The animals did not show any increased sensitiveneess to the drug under repeated doses. Stern discussed the cases refractory to "606," having encountered eight among his eighty patients thus treated. The patients would have responded equally well to ordinary mercurial treatment and two of them probably even better. Scholtz suggested that possibly the blood serum of syphilities just treated with "606" might have a curative action, and reported encouraging experiences in this line. In two cases injection of the serum was followed by subsidence of the manifestations of syphilis as under mild mercurial treatment; in three other cases the benefit was less pronounced. Grünfeld obtained the best results from the "606" in tertiary and inherited syphilis and found it harmless. He added that armed with this new remedy flying squadrons might be organized and sent throughout the country to combat syphilis as effectually as the flying squadrons now handle eye diseases in Russia. Hitherto the tediousness of the treatment of syphilis has prevented the organization of flying syphilis squadrons. Dohi, of Tokio, presented photographs of two syphilities whose specific lesions, he said, had vanished under the "606" like snowflakes in the sunshine. Grouven reported infiltration and painfulness at the site of the first injection after a second injection elsewhere, demonstrating irregular absorption of the drug, but otherwise had no special by-effects even with four repetitions of the injections—no signs of anaphylaxis or diminution of efficiency. He also reported the curative action on an infected rabbit of the blood serum from a patient treated with "606." Glück stated that he had observed no by-effects in 417 cases although he had injected up to 0.8 gm. in some cases. Friedländer advocated an injection of the new drug in every case of chancre without waiting for a certain diagnosis. He advises continuing treatment with "606" only when new symptoms develop. One great advantage of the new remedy, he remarks, will be that thousands will be saved by it from the clutches of unscrupulous quacks. Salmon reported from Paris that a prophylactic small dose of "606" had proved effectual in warding off infection in monkeys. He regards tuberculosis and lupus as contraindications, having observed hemoptysis after injection in one case and ulceration of a tuberculous skin lesion in another. Schindler remarked that in the rejoicing over "606" we must not forget to rejoice over our possession of mercury too. Nagelschmidt reported extensive experiences with "606" in cases of incipient tabes and advocated his technic which has given excellent results. He gives first a very small dose; this is often followed by exacerbation of symptoms, and he waits for this reaction to subside entirely, sometimes for one or several weeks, before he repeats the same or a little larger dose, continuing in this cautious way with suitable intervals until he has given up to 1.5 or 2 gm. of the "606." Pick commented on the varying intensity of the reaction in different persons, the hysteric, neurasthenic and those with lively reflex action displaying the severest reactions.

MANILA LETTER

(*From Our Regular Correspondent*)

MANILA, Sept. 20, 1910.

Opening of the New General Hospital

The new Philippine General Hospital has at last been opened to government employees and to the public. The Bureau of Health gave a reception to the public on the opening of the institution at which the U. S. Secretary of War, the Hon. Jacob M. Dickinson, Governor-General Forbes and other prominent government officials were present. There had been considerable delay in opening the new hospital, for which it seemed difficult to place the blame, and it was only after an executive order setting the date for the opening of the institution that it began to appear that there was any hope of getting into the new quarters before Christmas. The civil hospital, the old institution for government employees, has been taken over by the Philippine General Hospital and constitutes at present the greatest function of the latter institution. Few charity patients have as yet been admitted, owing to lack of accommodation. The city wards of St. Paul's Hospital have not yet been transferred and few private patients have entered the new hospital. Work on equipment and arrangement is rapidly going forward, however. When everything is completed Manila promises to have the most complete and modern hospital in the entire Orient. The Philippine Medical School, located on the same campus as the hospital, also entered its new quarters last week, but with very little display. As has been previously noted, both

institutions are of the latest type of reinforced concrete structure, have an abundance of light and ventilation and are well suited to a tropical country.

Culture of the Leprosy Bacillus

Considerable interest attached to the recent work of M. T. Clegg of the Bureau of Science in the successful growth on artificial media of the leprosy bacillus. For several years attempts have been made at the Bureau of Science to grow this organism, but without definite success, until the recently successful efforts of Mr. Clegg. The value of the present work lies in the fact that it paves the way not only for further investigation into the nature of leprosy, its portals of entry into the system and its agents of transmission, but also for experiments of a therapeutic nature. Already the possibility of a specific serum therapy has suggested itself and some few preliminary steps have been taken in that direction. The following is the technic employed in the growth of the *Bacillus lepræ:*

The organism in several cases was obtained from the spleen, taken out under aseptic conditions, of patients recently dead of leprosy. It was grown in symbiosis with the ameba and the cholera vibrio. "Ten tubes, each containing a 24-hour growth of the ameba and the cholera vibrio, were inoculated with the splenic pulp, as were also ten control tubes containing sterile agar. All the tubes were placed in the incubator and kept at a temperature of 37 C. for 7 days. At the end of this period smears from the tubes containing the mixed culture of ameba and cholera vibrio showed, when stained by the Ziehl-Neelson method, a change in the morphology and a multiplication of the leprosy bacilli, while smears made from the control tubes stained in a similar manner showed no evidence of a multiplication of the bacilli inoculated and no noticeable changes in morphology. Transplants of the mixed cultures of amebas and cholera and leprosy bacilli were made to fresh agar tubes and incubated at the same temperature. Smears from these tubes made 3 days later and stained as before showed a great increase in the number of the acid-fast bacilli and also a change in their morphology from the long, slender bacilli found in smears from leprous lesions to short plump rods and occasionally coccus forms. This deviation in morphology is not constant, however, on continued cultivation; some cultures have resumed a more typical morphology. Transplants of the mixed cultures were then made once a week for 3 months. After having been on the artificial medium for this length of time, the cultures were placed at a temperature of 60 C. for 30 minutes. This temperature was sufficient to kill the amebas and the cholera vibrios, but not the acid-fast bacilli. Transplantations were made from the heated cultures to fresh tubes containing amebas and cholera vibrios and also to tubes containing plain, sterile agar. After 3 days' incubation, smears from the tubes containing the amebas and cholera vibrios showed a development of the acid-fast bacilli, and at the end of 6 days, small, brownish colonies with regular margins appeared on the surface of the tubes containing plain agar only. Smear preparations made from these colonies and stained by the Ziehl-Neelson method showed microscopically an acid-fast bacillus."

After being once isolated in pure culture the leprosy bacillus has been found to be easy of cultivation on artificial media, resembling somewhat the tubercle bacillus in this respect. It has not been found possible so far to produce the disease in monkeys with the pure culture of the bacillus. In guinea-pigs, however, after several weeks some lesions were produced which closely resemble macroscopically and microscopically those found in the human being, from which the acid-fast organism was again recovered. In none of the experimental animals did any tuberculous lesions develop. Thus the likelihood that the acid-fast organism is the tubercle bacillus is rendered very slight.

Leprosy in the Philippines

While leprosy is not a rare disease in the Philippines, one seldom has occasion to see a case except at the leper hospitals. Legal restrictions are very close and the Bureau of Health has always been very active in its campaign of segregation. Every health officer throughout the islands is required to keep a keen eye open for all new cases and escaped lepers, and to report them to the Director of Health. Arrangement is speedily made for the immediate transfer of all such patients either to the leper department of San Lazaro Hospital in Manila or to the Culion Leper Colony. In suspected cases the Bureau of Science is called upon to aid in the diagnosis by laboratory examinations.

The Culion Leper Colony is an interesting institution, not only from its medical aspects, but also from the civil standpoint. It is located on the small island of Culion, south of Luzon, and is the great detention camp for the lepers of the Philippine Islands. It has its own civil government, under the direction of the central government of course, elects its own administrative officials and perhaps resembles a small agricultural community as much as it does a large state charity hospital institution. The members of the colony are encouraged, and in a measure required, to engage in some agricultural or industrial activity. The former is preferable, as its environments are more healthful and the great majority of the Filipinos are better adapted to agriculture.

The occurrence of leprosy in the Philippine Islands may be judged from the *Quarterly Report of the Bureau of Health for the Philippine Islands* for the second quarter of 1910: In the Culion Colony there were remaining April 1, 1910, 1,579 cases; admitted since that date, 180; born, 3; discharged, 0; escaped, 3; died, 78; remaining, 1,681. At the San Lazaro Hospital: remaining April 1, 133; admitted, 55; discharged, 5; discharged, not leprosy, 5; escaped, 4; died, 6; remaining, 166. To these must be added 220 lepers in the Moro (Mohammedan) Province. In addition also the Bureau of Health estimates that there are 205 lepers not yet transferred to Culion. This makes the total 2,272 for the entire Philippine Islands with a population of 8,000,000. Of the total number of lepers 1,681 are Filipinos, 3 Europeans, 1 American and 1 Chinese.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 22, 1910.

Discovery of Radium in Cornwall

A discovery of radium has been made in Cornwall which must help the progress of radium therapy. The element is obtained from pitchblende. The amount actually produced to date is 5,500 milligrams of 10 per cent. radium, or 550 grams of pure radium. In addition, 8 tons of pitchblende concentrates have been stored which, according to Sir William Ramsay, will provide 550 grams more. Sir William Ramsay states that there are not more than 5,500 milligrams, apart from this supply, in the whole world. It is impossible to say what proportion of the radium in use at present is pure, but much of it does not exceed the 10 per cent. standard. Polonium also exists in the pitchblende concentrates which have been obtained from the Cornish mines, but to what extent is not yet known. The process of purification of the pitchblende ore is carried on in a factory in London. The ore is crushed by the ordinary processes and delivered in London in a concentrated form. The uranium and iron are first dissolved out, and the radium is then precipitated out of the clear liquid. The precipitate is converted into the bromid, which by rapid crystallization is separated in a state of purity. This is a new process which occupies only a couple of months, while the process employed on the continent of Europe has occupied 2 years and the latest process a year. From each ton of pitchblende 530 milligrams of radium are produced. The Cornish supply appears to be much richer than the Austrian, which has hitherto been supposed to be the best. At present, the medical demand for radium is very great, much greater than the supply. The price is from $90 to $100 per milligram. The greatest precautions are taken for the safety of the first stock of British radium; it is kept in a specially constructed safe lined with lead, the only metal through which the emanations do not escape.

Plague in London

In a recent letter I reported the occurrence of a case of plague in a native member of the crew of a vessel which had arrived at Bombay. Another case has been discovered on the river at Thames. The patient was a native steward of the S. S. *Himalaya*, which has also come from Bombay. He applied for treatment at the Branch Seamen's Hospital, saying that he had been ailing for some days. He was admitted and died suddenly on the following day. The necropsy showed appearances suggestive of plague and material was sent to the government bacteriologist, who confirmed the diagnosis.

British Medical Education

The problem of medical education in Great Britain is a difficult and very complex one. Though many and rapid changes in the methods have taken place they have not kept pace with the still more rapid advance of medicine and its ancillary sciences. The present system has roots some centuries old among people whose temperament is very conservative and who

adopt reforms only under compulsion. British medical education is conducted by a large number of very diverse bodies—17 universities, 7 royal corporations and 2 other diploma-granting bodies. These bodies are controlled by a coordinating authority, the General Council of Medical Education and Registration, which works under and is responsible to the government. This council is made up in the following way: Each educational body sends a representative, the government nominates 5 members and the physicians elect 6 from among themselves. The council regulates the standard of education to which the various bodies must conform and appoints visitors to report on the examinations conducted by these bodies. It insists on a certain minimum of training and the passing of specified examinations by medical students before they can become physicians. The scheme of medical education occupies a minimum of 5 years and more usually extends to 6 or 7 years. On entrance the student must pass an examination of a general educational character. He then devotes one year to elementary science—chemistry, botany, biology and physics; 2 years to scientific work of direct professional reference, that is, to anatomy and physiology; and 2 years to clinical work. At the end of each of these periods examinations have to be passed. Anatomy and physiology must be thoroughly mastered and many rejections occur and the students do not reach the last stage of their education until their fifth year. The enormous progress of medical science has rendered the last stage difficult and the 2 years allotted to it often prove insufficient. Six or 12 months above the allotted period may be spent in learning the practice of medicine, surgery and obstetrics, and in acquiring a familiarity which is no longer allowed to be slight, with ophthalmology and the administration of anesthetics, to mention only two special subjects. On the whole, the medical students are well-educated before they are permitted to practice, and although the standard of examination varies a good deal among the different educational bodies there is none which is not respectable or which is comparable with those bodies in the United States and Canada which have been censured in Mr. Flexner's recent report.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 21, 1910.

The Eleventh French Congress of Internal Medicine

The eleventh Congrès français de médecine interne met October 15 at Paris under the presidency of Professor Landouzy, dean of the Paris medical college. Among those attending were several foreign professors, especially Maragliano of Genoa, Henrijean of Liège, and Mayor of Geneva.

The general strike on the railroads, which had just been declared, hindered the success of the meeting very much; and besides the congress felt the disadvantage of those defects of organization which, unfortunately, are becoming too frequent in this kind of meetings. The papers were distributed to the members only at the session, which impeded the discussion very much. Moreover, for some time it has been the custom to appoint several essayists on each subject. This practice has some advantages, it is true, when the essayists divide the subject so that each undertakes the discussion of one side of the question, so that their work is mutually complementary. Otherwise the number of the papers leads to tiresome repetitions; and this was the case in this meeting. For example, the subject of bradycardias was treated in two papers, one by Drs. Vaquez and Esmein of Paris, and the other by Dr. Gallavardin of Lyons, each of whom covered the entire subject. An attempt was made to remedy the state of affairs by forming an association open to physicians of French-speaking countries, who, through a permanent commission, on which the various nationalities should be represented, would undertake the work of organizing the congress. Professor Bard of Geneva was commissioned to make a report on this subject at the next meeting, which will take place at Lyons, in 1911, under the presidency of Dr. J. Teissier, professor of the medical clinic at the Lyons college of medicine. It was otherwise in the case of the two questions of present-day importance, namely, the treatment of syphilis by Ehrlich's method and the value of tuberculin therapy; these aroused the most interesting discussions.

Treatment of Syphilis by "606"

Dr. Milian, physician of the hospitals of Paris, has treated 130 patients by "606." He recognizes that Ehrlich's preparation has the toxicity and may have the bad results peculiar to all arsenical derivatives, but, according to his own experience, accidents are very rare and he has never observed the least visual trouble in any case. The only general trouble which has been observed has been occasional fever, which never exceeds 38 C. (100 F.). Local accidents, except pain, may be avoided in great measure if care is taken to make the injection into the muscular and not in the subcutaneous cellular tissues and to select the lumbar in preference to the gluteal region. The drug is of remarkable power, especially on the secondary manifestations of syphilis. Dr. Jeanselme, physician of the hospitals of Paris, and *agrégé* of the Paris medical college, in collaboration with Drs. Laignel-Lavastine and Touraine, has treated fifty syphilities by "606" without ever having seen phenomena of intoxication or serious accidents. The injection into the gluteal region is accompanied by sharp pains which often radiate into the whole leg. For several days the buttock is tense and doughy, and walking is difficult. Morbilliform or urticarial erythemas are observed sometimes at the site of the injection, sometimes at a distance, and the temperature remains high for three or four days. The next day after the injection a turgescence of the chancre and the neighboring tissues and a papillous appearance of the roseola are observed at the same time, but these phenomena are ephemeral and soon regression of the syphilids begins, the hypertrophied mucous plaques become effaced, dry up and in a few days epidermis forms over them. Papillous or acneiform slyphilids which resist mercury become absorbed in about 2 weeks. Headache disappears in from 1 to 4 days. Dr. Sicard and Dr. Netter, *agrégés* at the Paris medical college, likewise reported the success which they obtained with Ehrlich's preparation. The communication made by Dr. L. Jacquet, physician of the hospitals of Paris, was less favorable. Dr. Jacquet treated three patients in his service. The first had a sclerogummatous syphilid of the tongue which rendered the movements of mastication and deglutition painful. Under the influence of "606," the pains diminished and the tongue became more mobile, but there was no objective modification of the lesion of the tongue. The second patient had a lingual ulceration with tertiary labial lesion. The latter improved rapidly, but the ulcer of the tongue persisted without change. It is probable, however, that it was a tuberculous ulceration. The history of the third patient is particularly interesting. He was a man of 53, with an ulcerated gumma of the right thigh and had already had several vomitings without blood, with painful gastric crises. An injection of 0.5 gm. of arsenobenzol was made. Seven days later when it appeared that the gumma was drying up and was manifestly undergoing epidermatization, abundant blackish vomiting occurred and the twelfth day after the injection the patient died. At the necropsy, a calloused ulcer of the stomach was found with gastric dilatation. Was "606" responsible for this death? Dr. Jacquet was compelled to believe it was. The patient had never before had hematemesis. He had entered the hospital not cachectic, in a fairly good general condition. He was kept quiet and on a milk diet and thus in the best possible condition to support the treatment. The violent vasodilating action exerted by arsenical compounds and the various hemorrhages which they provoke are well known. Therefore, Jacquet thinks that ulceration of the digestive tube should be added to the contra-indications mentioned by Ehrlich.

The Discussion on "606" in the Academy of Medicine

Aroused by Dr. Hallopeau's communication at a recent session of the Académie de médecine, which I mentioned in a previous letter (THE JOURNAL, October 8, p. 1483), Dr. Ehrlich has written a letter to Dr. Netter which the latter laid before the academy, at the session of October 11. Ehrlich declares that he knows of no case of amaurosis or of any ocular lesion due to "606." As for the known cases of death, which number no more than twelve, Ehrlich remarks that in the syphilitic services where he has made the greatest number of injections, and where at least 8,000 patients have been treated, there has been only one death, and that due to the injection having been made under unfavorable conditions. The other deaths were in insane asylums or in clinics of internal medicine. He says that injections in subjects of severe diseases of the nervous system have been made absolutely contrary to his unvariable instructions. The cases of death are to be explained: (1) by a local reaction of syphilitic infiltrates into nerves whose functions are essential to existence; (2) by a general hypersensitiveness of the organism to the toxic agent (for a long time similar sensitiveness of general paralytics toward mercury has been known); (3) by a defective technic (insufficient asepsis, abscess). One death by rupture of an aneurism has been recorded. Dr. Ehrlich has particularly discouraged injections in subjects of vascular lesions.

Surgeons and Physicians

The address of Dr. Delagenière, president of the twenty-third Congrès français de chirurgie, which I mentioned in a previous letter (October 7, p. 1483), which blamed physicians for sending the patients to surgeons too late, has called forth an editorial response. The *Semaine Médicale* remarks that, so far as the surgical treatment of exophthalmic goiter, for instance, is concerned, the essayists of the surgical association are not quite up to date, since, according to the recent studies of M. Stern, there is a symptom-complex called "basedowoid" which is entirely different from real Basedow's disease. While surgery of the thyroid gland and its vessels often benefits true exophthalmic goiter it is injurious to basedowoid.

According to M. Delagenière, surgery holds the "first scientific place among medical sciences." This is an exaggerated pretension, which cannot fail to hinder surgical progress. In a recent article in the *Revue Scientifique*, Dr. Forgue, professor of the surgical clinic at the Montpellier college of medicine, declares that while at present surgery has increased its therapeutic domain by invading the province of medicine, it is impossible to foresee what will happen next. Already in some points surgeons have beat a retreat. "If to-morrow, medicine should discover a serum treatment for tuberculosis and cancer, we should be thereby expelled from our greatest operative domain."

Compulsory Physical Education

The Congrès de la Ligue de l'enseignement has on the motion of Dr. Lachaud, deputy, unanimously adopted a resolution asking that the government make physical education compulsory.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 13, 1910.

Personal

Professor Sauerbruch, assistant of Professor Friedrich at Marburg and formerly for many years an assistant of Mikulicz, has been called to Zurich as director of the surgical clinic to succeed von Krönlein.

Imperial Scientific Society

On the occasion of his address delivered at the centennial of the Berlin university, the Kaiser announced the foundation, under his patronage, of a scientific society, the functions of which shall be the erection and maintenance of institutions for research. These institutions will differ from the universities, which serve not only for research but for instruction, in being devoted solely to study and will be modeled on the institutions established in America by millionaires. In Germany we have had for medical purposes only one example of this kind of institution, namely, the George Speyer House in Frankfurt a. M. at which Ehrlich has carried on for some years his chemical investigations which resulted in the epochal discovery of his remedy for syphilis. Up to the present about $2,500,000 (10,000,000 marks) are available for the new imperial scientific society.

Coffee Substitutes Rejected

A manufacturer of cereal and malt coffee has proposed to the minister of justice to furnish his preparation as a substitute for coffee in the prisons. At the request of the minister of education the scientific deputation for medical affairs made the following report through Professors Rubner and Kraus: Coffee cannot be replaced by corn or malt. Such a substance at most serves no other purpose than the preparation of a dark coffee-like liquid or a slight addition of nutriment to the diet which could be accomplished quite as well and at less expense by a little bread. There is no equivalent for genuine coffee because in substitutes its stimulating action is lacking. For this reason comparisons of price are not to be considered. As the diet of prisoners affords very little condiments or invigorating elements, coffee should be retained. The substitutes are, to be sure, cheaper than coffee, but considering the cost of material and of preparation they are sold at an excessively high price. Consequently the refusal of the proposal is recommended.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Oct. 18, 1910.

Jubilee of Professors von Reuss and Urbantschitsch

A few days ago the twenty-fifth anniversary of their appointment as professors was celebrated by Dr. von Reuss, the well-known ophthalmologist, and Dr. Urbantschitsch, head of the ear clinic in Vienna, the successor of Politzer. The two men are united by close friendship, and both can be regarded as typical representatives of the Vienna school. They have, during the quarter of a century, seen many pupils from all parts of the world. The ear department especially is still the Mecca of all surgeons who wish to become experts in this modern branch of medicine. The celebration of the day was witnessed by representatives of the French, English, American, Italian and Japanese doctors now studying in this city.

Unveiling of Commemorative Tablets for Nothnagel and Gussenbauer

In commemoration of two famous professors of the university who have put their mark on the progress of medicine, funds were collected for a few months among the friends of the deceased, with the result that a short time ago there was unveiled a monument, in bas-relief, of Professor Gussenbauer, the pupil and successor of Billroth, who has continued the world-famed methods of his teacher and friend. In accordance with the curt, positive ways of the scientist, the inscription says nothing but "Karl Gussenbauer, the Surgeon." The other monument is in honor of the beloved teacher and famous physician, Nothnagel. The life-sized tablet, on which is a speaking portrait, a speaking likeness, bears the motto of the professor, to which he always adhered: "Only a kind man can be a good physician." Naturally, the ceremony of unveiling was witnessed by a select group of personal friends and followers of the two men, besides official representatives of medical corporations.

Medical Men Successful with Sick Benefit Clubs

In various districts of the country the increased demands on living expenditures resulted in increased demands by the doctors on the managing board with sick clubs, with consequent conflicts. In all these instances the doctors carried their point, and have now a right to demand a fee of 4 cronen (about $1) per head of the members of the club, minor surgery, midwifery and night work being paid for extra. This means an increase of about 40 to 50 per cent. on the present payment. Thus the value of organization was demonstrated to those outside of it, with the result that nearly all practitioners are members of the organization now.

Marriages

WALTER G. HARDER, M.D., to Miss Clara Campe, both of San Francisco, October 15.

ARTHUR W. THOMAS, M.D., to Miss Edith Jones, both of Springfield, Mo., October 19.

RICHARD A. ROACH, M.D., to Miss Anna Katherin Merle, both of Chicago, October 26.

GEORGE H. LAMLEY, M.D., to Miss Bertine Robinson, both of Blissfield, Mich., October 20.

EDGAR NELSON ZINN, M.D., to Miss Lizzie Hanson, both of Thompson, Iowa, October 12.

FREDERICK TIGH, M.D., to Miss Amelia Hennessy, both of Newburyport, Mass., recently.

JOSÉ M. FERRER, M.D., to Miss Teresa R. O'Donohue, both of New York City, October 18.

HERMAN THEODORE RADIN, M.D., to Miss Pauline Loewy, both of New York City, October 27.

JAMES HARTZELL LANGSTAFF, M.D., to Miss Aldine Merit, both of Fairbury, Ill., October 22.

FRANK H. RELIHAN, M.D., Smith Center, Kan., to Miss Elizabeth Kinne of Seattle, October 8.

FRANK SHERWOOD MEADE, M.D., Madison, Wis., to Miss Lucy Wood of Bloomington, Ill., October 25.

HOAGLAND COOK DAVIS, M.D., Baltimore, to Mrs. Katharine Carroll Dowell, at Baltimore, October 19.

D. EMORY SHY, M.D., Knobnoster, Mo., to Miss Esther Rothwell of Rocky Ford, Colo., October 11.

HENRY GOLDTHWAITE, M.D., to Miss Amanda Moore, both of Mobile, Ala., at New York City, October 22.

DARWIN WALTON HALL, M.D., Kansas City, Mo., to Miss Katherine Motter of St. Joseph, Mo., October 5.

HORACE G. MERRILL, M.D., Provo, Utah, to Miss Merl Miller of Murray, Utah, at Salt Lake City, October 20.

JOHN P. LONGWELL, M.D., and MATTIE LOUISA BERRY, M.D., both of Wellsboro, Pa., at Leona, Pa., October 12.

Deaths

Frederick Holme Wiggin, M.D. Bellevue Hospital Medical College, New York City, 1877; a prominent physician of New York City; died at Atlantic City, N. J., October 28, aged 56. Dr. Wiggin was a member of the American Medical Association; formerly secretary and later president of the New York State Medical Association; third vice-president of the American Medical Association in 1898 and formerly a member of the Judicial Council; fellow of the New York Academy of Medicine; a member of the Harvey Society, the New York Medico-Surgical Society, and the New York Academy of Sciences; president of the Alumni Society of Bellevue Hospital; honorary member of the Congress of German Surgeons at Berlin; from 1892 to 1908 visiting surgeon and gynecologist at the New York City Hospital, and adjunct visiting surgeon at Bellevue Hospital during 1897 and 1898.

William Canniff, M.D. New York University, New York City, 1854; University of Victoria College, Toronto, 1859; assistant surgeon in the Royal Artillery from December, 1855, until the close of the Crimean War; member of the Royal College of Surgeons, England, 1855; lecturer on general pathology in Victoria University, 1858; professor of surgery in 1859, and given the degree of M.D. from that institution in the same year; acting assistant surgeon U. S. Army, 1865; one of the founders, secretary in 1867, and vice-president in 1869 of the Canadian Medical Association; president of the Medical Section of the Canadian Institute, Toronto, 1870; a member of the board of examiners of the College of Physicians and Surgeons, 1883; for several years health officer of Toronto, and later a resident of Gravenhurst, Ont.; died in Belleville, Ont., October 18, aged 80.

James **Baynes Walker, M.D.** University of Pennsylvania, Philadelphia, 1872; a member of the American Medical Association, American Climatological Association, American Academy of Medicine, and president of the Medical Club of Philadelphia, and formerly president of the Northern Medical Association of Philadelphia and Philadelphia County Medical Society; a member of the State Board of Medical Examiners; professor of practice of medicine in the Woman's Medical College of Pennsylvania from 1879 to 1890; visiting physician to the Philadelphia and Woman's Hospitals, and consulting physician to the West Philadelphia Hospital for Women; died at his home in Philadelphia, October 19, from diabetes, aged 63.

William **Franklin Hines, M.D.** College of Physicians and Surgeons, Baltimore, 1877; formerly of Chestertown; a member of the Medical and Chirurgical Faculty of Maryland, and chief of the Bureau of Vital Statistics of the State Department of Health; for four years a member of the State Board of Medical Examiners, for ten years health officer of Kent County, and for two years superintendent of the State Bureau of Immigration; died at his home in Baltimore, October 17, from cirrhosis of the liver, aged 54.

George Whipple Porter, M.D. Harvard Medical School, 1874; a member of the Rhode Island Medical Society and the American Academy of Medicine; one of the founders of and surgeon to the department of gynecology of the Rhode Island Hospital; one of the founders of and consulting physician to the Providence Lying-in Hospital and St. Elizabeth's Home; for several years surgeon of the First Light Infantry, N. G. R. I.; died in Boston, October 15, from pneumonia, aged 63.

John Somers Buist, M.D. Medical College of the State of South Carolina, Charleston, 1861; emeritus professor of general surgery and surgical pathology in his alma mater; a member of the South Carolina Medical Association, and Southern Surgical and Gynecological Society; surgeon in the Confederate service during the Civil War; died at his home in Charleston, September 29, from cerebral hemorrhage, aged 70.

James Americus Reagan, M.D. Shelby Medical College, Nashville, 1859; Vanderbilt University, Nashville, Tenn., 1877; a pioneer clergyman and practitioner of north Buncombe County, N. C.; for several years mayor of Weaverville; a member of the Medical Society of the State of North Carolina; died at his home in Weaverville, October 24, aged 86.

Nathan G. Hardister, M.D. Vanderbilt University, Nashville, Tenn., 1879; Jefferson Medical College, 1880; formerly of Jacksonport, Ark., but recently of Hoxie, Ark.; whose body was found floating in White River September 13, is believed to have committed suicide while under the influence of drugs. He was a Confederate veteran and 63 years of age.

William S. Webster, M.D. College of Physicians and Surgeons, New York City, 1856; a surgeon in the Army during the Civil War; local surgeon in Liberty, N. Y., of the New York, Ontario and Western Railroad, and a practitioner of Liberty for more than fifty years; died at his home, July 23, from cerebral hemorrhage, aged 77.

Edwin Augustus Knight, M.D. New York University, New York City, 1867; of Newton, Mass.; a veteran of the Civil War; visiting physician at Newton Hospital; died in Franklin, N. H., June 14, from the effects of prussic acid, self-administered it is believed with suicidal intent, aged 67.

Charles E. Hill, M.D. Syracuse, N. Y., Medical College (Eclectic), 1850; surgeon of the One Hundred and Eighty-Eighth Volunteer Infantry during the Civil War; up to 1880 a practitioner of Fabius, and thereafter of Syracuse; died in North Syracuse, October 11, from heart disease, aged 85.

Orville B. Blackman, M.D. Hahnemann Medical College, Chicago, 1873; a member of the Illinois State Medical Society, and of the staff of the Dixon Public Hospital; died at the home of his daughter in Malvern, Pa., October 15, from cerebral hemorrhage, aged 58.

William G. Nicholson, M.D. Rush Medical College, 1897; a member of the American Medical Association and the Fox River Valley Medical Society; surgeon to St. Mary's Hospital, Green Bay, Wis.; died at his home in that city, October 16, from pneumonia, aged 41.

James McClelland Duncan, M.D. Miami Medical College, Cincinnati, 1892; a member of the American Medical Association; president of the school board of Pawnee, Ill., and for four years president of the village; died at his home, October 16, from typhoid fever, aged 48.

William Green, M.D. College of Physicians and Surgeons, New York City, 1854; formerly a practitioner of Scranton, Pa., and of Virginia; and for the last twenty years a resident of Lincoln, Neb.; died at his home, October 20, from cerebral hemorrhage, aged 79.

Samuel Marion Carter, M.D. University of Nashville and Vanderbilt University, 1885; a member of the Knox County Medical Society, and for ten years physician of Knox County; died at his home in Knoxville, Tenn., October 11, from chronic nephritis, aged 62.

William Henry Fisher, M.D. Bellevue Hospital Medical College, 1876; coroner of Tioga County, N. Y., from 1880 to 1883; a member of the board of health and first president of the village of Spencer; died at his home in Elmira, October 18, aged 56.

Jean Philippe Rottot, M.D. Laval University, ——; one of the founders of the Montreal branch of Laval University and dean for many years, retiring in 1907; a practitioner of Montreal for 63 years; died in that city, September 28, aged 85.

William L. Rouse, M.D. Medical College of Ohio, Cincinnati, 1875; a member of the American Medical Association; president of the Greene County Medical Society; died at his home in Painterville, Ohio, October 18, from cerebral hemorrhage, aged 60.

Ballery Wagner Hunter, M.D. Medical College of the State of South Carolina, Charleston, 1883; a member of the American Medical Association; died at his home in Charleston, August 13, from pachymeningitis, following septicemia, aged 46.

John A. Leavy, M.D. St. Louis Medical College, 1857; an honorary member of the St Louis Medical Society; surgeon in the Confederate service during the Civil War; died at his home in St. Louis, October 24, from cerebral hemorrhage, aged 76.

Harvey C. Ensign (years of practice, Wayne County, Pa., 1895); justice of the peace of Waymart for twenty years; and for about forty years a practitioner of Waymart; died at his home, October 17, from cerebral hemorrhage, aged 65.

Francis Drayton Nabers, M.D. Tulane University, New Orleans, 1867; of Birmingham, Ala.; a Confederate veteran; died at the home of his son in Birmingham, September 28, from paralysis agitans, aged 65.

James Ross Bell, an eclectic practitioner of Ohio for 62 years; surgeon in the army during the Civil War; died in the Soldiers' Home Hospital, Dayton, Ohio, September 24, from senile debility, aged 85.

Richard Leuschner, M.D. Michigan College of Medicine and Surgery, Detroit, 1892; a member of the American Medical Association; died at his home in Mount Clemens, October 14, from pneumonia, aged 51.

Phineas H. Wheeler, M.D. Dartmouth Medical School, Hanover, N. H., 1865; surgeon in the army during the Civil War; died at his home in Alton, N. H., October 19, from cerebral hemorrhage, aged 70.

David Presbury Butler, Jr., M.D. Boston University, 1898; physician in charge of the Rutland (Mass.) Cottages; died at his home in Rutland, October 15, from endocarditis, aged 37.

James Lemon, M.D. Joplin (Mo.) College of Physicians and Surgeons, 1882; a veteran of the Civil War; died at his home in Erie, Kan., October 7, from chronic nervous disease, aged 69.

T. Newton Lewis, M.D. Pennsylvania Medical College, Gettysburg, 1861; formerly of Adrian, Mich.; died at his home in Mount Dora, Fla., January 7, from heart disease, aged 70.

Charles Francis Brem, M.D. New York University, New York City, 1867; a Confederate veteran; died at his home in Charlotte, N. C., October 10, from heart disease, aged 64.

Warren Decoto Osgood, M.D. Cooper Medical College, San Francisco, 1910; of Oakland, Cal.; died in the Alameda Sanitarium, October 14, from typhoid fever, aged 23.

Samuel L. Hargreaves, for many years a practitioner of Hebron, Neb., and prior to that time for twenty years in Missouri; died at his home, August 6, aged 75.

Peter Orrin Stonebraker, M.D. Rush Medical College, 1892; of Scotland, S. D.; died in St. Joseph's Hospital, Sioux City, Iowa, September 27, from pneumonia, aged 45.

Jesse Walter Evans, M.D. Rush Medical College, Chicago, 1873; a veteran of the Civil War; died at his home in Varna, Ill., October 14, from pneumonia, aged 73.

Daniel Archibald Sinclair, M.D. University of Toronto, 1903; formerly of Melbourne, Ont.; died at his home in Pasadena, Cal., October 1, from nephritis, aged 34.

Daniel Richardson Pool (license, Miss.); for many years a practitioner of Ellisville; died at his home, July 21, from senile debility, aged 84.

Benjamin James Zudzense, M.D. Rush Medical College, 1891; died at his home in Sparta, Mich., August 3, from valvular heart disease, aged 60.

Charles Stoddard Stroud, M.D. McGill University, Montreal, 1876; died at his home in Montreal, June 5, from cerebral hemorrhage, aged 66.

Alonzo Atwood (years of practice, Ohio, 1896); died at his home in Middlefield, April 9, from senile debility, aged 78.

Edmund Henry Dillabough (license, Ont., 1868); died at Hamilton, Ont., October 26, aged 76.

Pharmacology

TWO DANGEROUS HAIR DYES

"Eau Sublime" and "Mrs. Potter's Walnut Tint Hair Stain"

Inquiries were recently made regarding the composition of "Eau Sublime," a hair dye put on the market by Mrs. H. Guilmard, New York. Our correspondent states that a patient using this preparation was suffering from "a marked lassitude and an obscure general eruption." Since many similar cases have been reported from the use of Mrs. Potter's Walnut Juice Hair Stain,[1]—now called "Mrs. Potter's Walnut *Tint* Hair Stain"—which owes its poisonous properties to the presence of paraphenylen diamin, the presence of the latter in "Eau Sublime" was at once suspected. In view of the dangerous nature of this substance, it was considered of importance to make a chemical examination of "Eau Sublime" to determine whether or not paraphenylen diamin was responsible for the effects following its use. On request for a specimen of the preparation, the correspondent sent an original package, which was examined in the Association Laboratory. The following is a report of the examination:

> "Eau Sublime," as received in the Association Laboratory, was contained in a carton sealed with a label bearing the name of the preparation, its manufacturer and its uses. The carton contained two one-ounce bottles, one marked "A" containing a brown liquid and the other marked "B" containing a colorless liquid. The cork in this bottle, which was wired down, was bleached where it was exposed to the liquid.
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> That one of the ingredients of "Eau Sublime" is paraphenylen diamin was shown by the response of the liquid in bottle "A" to the following tests, recommended for the detection of paraphenylen diamin: Some of the liquid was mixed with an equal volume of hydrogen peroxid solution and the mixture placed on paper or cotton, which became bluish-black on drying. A splinter of pine wood dipped into the liquid and then treated with dilute acetic acid became bright red. The diluted acidified liquid became violet on adding ferric chlorid solution. A few drops of the liquid added to 4 or 5 c.c. of a 1 per cent. solution of potassium permanganate decolorized the latter, emitting at the same time a faint odor of ammonia. A drop of the liquid placed on a white surface and then treated with a drop of bromin water, became at first a bright green and then a dull violet color.
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> The identification of the contents of bottle "B" as hydrogen peroxid, suggested by the bleached condition of the cork and the pressure of the gas in the bottle, was verified by the following tests: Added to dilute, acidified potassium permanganate solution the latter was decolorized. A few drops added to 4 or 5 c.c. of an acidified solution of potassium dichromate and the mixture shaken with 5 c.c. ether, produced in the latter a blue color.

These tests show that "Eau Sublime" consists, essentially, of hydrogen peroxid and paraphenylen diamin. This emphasizes the need of cautioning the public against the indiscriminate use of hair dyes, particularly those containing paraphenylen diamin, which, although exploited as "harmless" preparations, are decidedly dangerous. The tests above mentioned could be carried out by a physician, and from the results of such tests he would be placed in a position to act as an adviser and to caution his patients.

"Eau Sublime" has been declared misbranded by the federal government and the case published in Notice of Judgment No. 434. While no mention is made in the government's report of the identity of the essential drug in the nostrum, the statement is made: "the use of said drug ["Eau Sublime"] would tend to produce an eczema of the scalp."

Between the dates of Feb. 13 and Oct. 22, 1909, there were reported to THE JOURNAL[1] twenty-three cases of poisoning due to the use of Mrs. Potter's Walnut Juice Hair Stain. This hair dye was shown by analysis to depend for its action on the presence of paraphenylen diamin. The predominating symptom of the poisoning in each case was a dermatitis of varying degrees of intensity. We now have to report five more cases of poisoning from the use of the same dangerous dye.

Sept. 21, 1910, Dr. P. R. Straight, Bradford, Pa., one case.
Oct. 4, 1910, Dr. H. B. Ormsby, Cleveland, one case.
Oct. 17, 1910, Dr. H. K. Gaskill, Philadelphia, three cases.

1. THE JOURNAL A. M. A., Feb. 13, 1909, p. 557; March 6, 1909, p. 787; April 3, 1909, p. 1121; May 15, 1909, p. 1579; Aug. 14, 1909, p. 528; Sept. 4, 1909, pp. 803 and 809.

CAMPHENOL

To the inquiry, "What is Camphenol?" the chemical laboratory reports:

Camphenol is made by Johnson & Johnson, New Brunswick, N. J. Under the name of the article on the carton appears the following formula: $C_{10}H_{16}O—C_6H_4(CH_3)OH=C_6H_5OH$. This formula consists of the chemical formulas for camphor, cresol and phenol, written one after another, and from this one would conclude that Camphenol is a compound of camphor, phenol and cresol in molecular proportions. Examination shows, however, that Camphenol is but a modification of the well-known camphorated phenol (the liquid produced when solid camphor and phenol are triturated together). In Camphenol a part of the phenol, in the camphorated phenol, has been replaced by cresol, and this liquid has been diluted and emulsified with gelatin or some similar substance and perfumed. In other words this preparation is an emulsion containing relatively small quantities of cresol, phenol and camphor and is another illustration of the attempts of would-be pharmaceutical houses to produce new synthetics in the simplest manner possible—that of writing the chemical formulas of the constituents of a remedy in a way to indicate a chemical combination.

Correspondence

Interstate Reciprocity in Licensing Physicians

To the Editor:—This subject is not receiving the attention it should receive by the medical profession in general. To be sure an occasional article appears from time to time in medical journals, but that is not enough. More action is needed. Something must be done for the future of the old practitioner—for the physician who is in good standing with his local and state societies and the American Medical Association, and who has been in active practice for the last ten or more years.

Suppose that for his own health, or that of some other member of his family, or for any other good reason, he wants to go into some other state. If the state in which he wishes to locate does not reciprocate with the state in which he has been practicing, he must then go before the board of medical examiners and pass an examination before he can get his license; an examination which probably three-fourths of the members of the board themselves could not pass; an examination meant for recent graduates. What chance does the old practitioner have of passing this examination?

To make it still worse, some states are about to require that no physician will be allowed to even take the state board examination unless he has studied a year or two in a college previous to taking his medical course. To make this apply to the old physician is a decided injustice. When he began his medical studies he was not obliged to have had any college training. He had all the necessary requirements at the time but since he graduated, the requirements have changed.

What is he going to do? Must he go back to the university and take a college course before he can get a license to practice medicine? Again I say is it just? And what is going to be done about it? Something must be done or else they will rise up in arms against the unjust way they are being treated. I am most heartily in favor of higher requirements for the coming physicians—but allowances must be made for the old practitioner who for good reasons wishes to change his location from one state to another. It seems to me a national license should be issued granting the privilege to practice anywhere in the United States to physicians who have been practicing ten or more years, and are in good standing in their local and state societies and the American Medical Association.

E. F. HAMLIN, M.D., Slatersville, R. I.

To the Editor:—In THE JOURNAL of October 15, p. 1397, is a communication headed, "Interstate Reciprocity in License to Practice," which is much overdrawn, although probably unintentionally. The writer appears to be much put out with present methods used in the examination and licensure of practitioners of 10 to 25 years' standing, and refers to this "tyranny against which the masses of the older practitioners should rise up." He also designates the trained modern graduate as one of "the inexperienced tyro and the compend brigade."

If the doctor really wishes to change his location without an examination, it would be well for him to get the "Laws (abstract) Regulating Practice . . ." from the American Medical Association, and he will find that many of the states make provision for the old practitioner by reciprocating on the basis of his diploma alone, without the examination. However, if an examination appears necessary, I would suggest that he consult the State Board number of THE JOURNAL, May 21, and observe the number of low-grade states in which practically everybody gets through; then ascertain with what other states they reciprocate on the basis of an examination. There are several low-grade states that reciprocate with others of much higher standard, and this, meanwhile, is one weak point in reciprocity. Now if the old practitioner will buy some modern "compends," and read systematically every day a certain number of pages, he will before long have an up-to-date knowledge of the essentials requisite to pass examinations in any of those easy states referred to. Then he will not feel the burden of the job, but will grow into the knowledge, which he will find very helpful in other respects as well.

Any old practitioner of average ability who could not prepare himself in this manner must be sadly in need of renovation. The points that he learns will give him a renewed interest in the study, and get him up to date. The satisfaction also of earning a medical license by examination, which makes available a wider field of reciprocity, will pay for the moderate effort.

C. FRED CURTIS, M.D., Bath, Me.

The Electric Treatment of Poliomyelitis

To the Editor:—In the short paper on "The Treatment of Poliomyelitis from the Neurologist's Point of View" published in THE JOURNAL, October 22, Dr. B. Sachs says: "Muscular exercise is the chief aim in the treatment, and for that reason one must follow the simple rule that in treating the paralyzed muscles that form of current is to be used which gives the best contraction with currents of moderate strength."

I believe that all who have paid attention to this matter will agree with this statement of Dr. Sachs. But in many cases of poliomyelitis no contraction whatever can be produced by "currents of moderate strength." And indeed in many cases no contraction, or only a feeble one, can be produced by even painful currents. No good can be accomplished by using electricity unless the current produces muscular contraction. And in many cases muscular contraction can be produced only by currents which are painful. Such currents ought not to be used, at least on a child. Indeed many young children will not bear even a moderate amount of pain and soon come to dread the application of electricity.

I have often known a mild current to be used which produced no contraction of the muscles. These applications of electricity are useless. On the other hand, contractions of the muscles are sometimes brought out by the use of strong currents which produce crying spells and states of nervousness in the child. If the electric current produces no contraction of the muscles it is useless; if it produces pain, and nervousness, and outcries it is worse than useless; it is distinctly harmful. I speak now especially of young children. Of course older persons will stand a current much better than young children.

So I would quite agree with Dr. Sach's statement that electricity is of value in the treatment of poliomyelitis only if we can get "contractions with a current of moderate strength." But I have known of so much useless and harmful treatment by electricity that I have thought it worth while to write this brief note by way of protest against it.

I believe that the electric treatment of poliomyelitis must be considered as the least valuable measure that we have and of far less worth than massage, passive exercise and orthopedic measures which Dr. Sachs so well describes. I advise electricity in only a small number of cases of poliomyelitis.

THEODORE DILLER, Pittsburg.

Hexamethylenamin in Pellagra

To the Editor:—Two weeks ago I began to treat a patient with well-defined pellagra in the second stage, with 15 gr. of hexamethylenamin, three times a day, with what seem to be remarkable results. The second night after the patient began to take the medicine, she slept 3 hours; the third night she slept 6 hours, and now for a week, she has slept all night and several hours during the day. Before this, the insomnia had resisted all ordinary narcotics. Within 4 days after the patient began the treatment all vertigo disappeared; also the numbness, tingling and burning. All these symptoms

had been constant and very annoying for 5 months previously. The urine became clear and the stools normal in frequency, color and odor for the first time in 6 months. The patient's improvement in every way was so remarkable that I took her yesterday to Dr. Beverly R. Tucker, of Richmond, Va., who confirmed my diagnosis. He informed me at that time that he also had treated several patients with hexamethylenamin, but in smaller doses, with excellent results. Do you think that this rapid improvement is due to the time of the year or are there other instances in which a patient has improved so rapidly? Hexamethylenamin is known to be a systemic antiseptic; on this fact I based the treatment.

I hope that others may try this and obtain the same satisfactory results.

B. B. BAGBY, West Point, Va.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON TUBERCULIN

To the Editor:—Please furnish references to the most recent literature on tuberculin treatment. M. N. C., Alabama.

ANSWER.—As our readers are aware, we often, in answering correspondents, give in this department lists of articles and books on various subjects, when we think that such lists will be of general interest. In many cases, however, we receive questions similar to the above, which we do not feel justified in answering in THE JOURNAL because of the Index which we publish every six months, and which is intended to answer such questions. It includes the principal articles published during the previous six months and it is in constant use by physicians everywhere. Its completeness and accessibility make it unnecessary in most cases for us to publish new lists of references. New readers are apt, of course, to overlook this feature of THE JOURNAL, and we therefore take space here to call attention to it. The following titles are selected from a list of over seventy references in the Index to the last complete volume, January to June, 1910, and from others to be indexed in the current volume:

Aufrecht, E.: Tuberculin in Diagnosis and Treatment of Pulmonary Tuberculosis, *Berl. klin. Wchnschr.*, March 14, 1910; abstr. in THE JOURNAL, April 30, 1910, p. 1485.

Baldwin, E. R.: General Principles of Tuberculin Diagnosis and Treatment, THE JOURNAL, Jan. 22, 1910, p. 260.

Crowe, H. W.: A New Method of Treating Acute Pulmonary Tuberculosis by the Alternate Use of Human and Bovine Tuberculin, *Lancet*, London, 1910; abstr. in THE JOURNAL, May 21, 1910, p. 1727.

Escherich, T.: Indications for and Results of Tuberculin Treatment of Tuberculosis in Children, *Wien. klin. Wchnschr.*, May 19, 1910; abstr. in THE JOURNAL, July 2, 1910, p. 94.

Griffin, W. A.: The Use of Tuberculin at the Sharon Sanatorium, *Boston Med. and Surg. Jour.*, July 28, 1910; abstr. in THE JOURNAL, Aug. 13, 1910, p. 621.

Hartwell, H. F., and Streeter, E. C.: Therapeutic Administration of Tuberculin in Surgical Tuberculosis, *Boston Med. and Surg. Jour.*, Jan. 6, 1910; abstr. in THE JOURNAL, Jan. 22, 1910, p. 319.

Hawes, J. B., and Floyd, C.: Tuberculin Treatment of Tuberculosis in Dispensary Patients, *Boston Med. and Surg. Jour.*, Jan. 6, 1910; abstr. in THE JOURNAL, Jan. 22, 1910, p. 319.

Neumann, J.: Treatment of Tuberculosis with Large Doses of Tuberculin, *Lancet*, London, 1910; abstr. in THE JOURNAL, March 12, 1910, p. 917.

Raw, N.: Treatment of the Surgical Forms of Tuberculosis by Tuberculin, *Lancet*, London, March 26, 1910; abstr. in THE JOURNAL, April 23, 1910, p. 1410.

Willard, D., and Thomas, B. A.: Therapy by Bacterins and Tuberculins in Mixed Suppurative Bone and Joint Disease, THE JOURNAL, July 9, 1910, p. 161.

HOW TO BECOME AN F.R.C.S.

To the Editor:—Please give requirements for obtaining the diploma of F.R.C.S. in England or Scotland. C. N.

ANSWER.—The diploma of F.R.C.S. is granted by the Royal College of Surgeons of England to a few distinguished persons in an honorary capacity. Each year, two persons who have long held the diploma of member may be elected to the fellowship. But the majority of fellows obtain the diploma by passing an examination which consists of two parts, the first covering anatomy and physiology, which may be taken after completing three years of medical work, and the second covering surgery, surgical anatomy and pathology, which may be taken after six years of professional study. These examinations are held in May and November of each year and are partly written and partly oral. The second includes also a number of practical tests, such as the examination of patients and the performance of operations on the cadaver. The candidate must be 25 years of age and a graduate in medicine of some university recognized by the college or hold a diploma from some other British licensing body. The fees for admission to the fellowship, including the fees for the examinations, are 30 guineas, or about $150. For candidates who already hold the membership diploma of the college the fee is 20 guineas (about $102). The Royal College of Surgeons of Edinburgh seldom grants its fellowship except on the passing of one examination, and the fee is £45 or about $215, or £35 for candidates who are already licentiates of the college. We suggest that our correspondent address a letter to the secretary of the Royal College of Surgeons, London (or Edinburgh, or both), stating what medical qualifications he now holds, where and when obtained and after what period of study, and asking what steps in the circumstances it would be necessary for him to take to obtain the fellowship of the college.

TREATMENT OF MORPHIN POISONING

To the Editor:—Please give in your Queries and Minor Notes department the chemical antidote for morphin poisoning, and explain its action. H.

ANSWER.—The most effective chemical antidote for morphin poisoning is potassium permanganate, which is believed to act by oxidizing morphin to oxydimorphin, which is non-poisonous. It should be employed as a solution to wash out the stomach. This is applicable even in cases in which morphin has entered the system by other channels, since morphin is excreted into the stomach. Precipitants of alkaloids, such as tannic acid, may act as antidotes by rendering the morphin insoluble.

LOCOMOTOR ATAXIA

To the Editor:—If locomotor ataxia is sclerosis of the posterior columns of the spinal cord, which are sensory, then why does it affect motion mostly? W. P. H.

ANSWER.—In locomotor ataxia there is degeneration of sensory fibers, chiefly those coming from the deeper tissues, such as the muscles, tendons and joints. As these fibers supply the muscular sense, this sense is to a large extent lost in locomotor ataxia. Hence the ataxia patient cannot regulate his movements, although in the earlier stages of the disease there is no loss of muscular power.

BOOKS ON CANINE SURGERY

To the Editor:—Kindly give references to books or literature pertaining to surgery on dogs, as well as anatomy of the dog and cat. O. M. S.

ANSWER.—There is no book devoted to the subject of surgery on the dog, all the literature on this subject being contained in scattered original articles treating each of certain features. The recognized authority on the anatomy of the dog is "Anatomie des Hundes," by Ellenberger and Baum, Berlin, 1891, published by Paul Parey. Rigard and Jennings' "Anatomy of the Cat," published by Henry Holt & Co., New York, is an excellent work on this topic.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Oct. 29, 1910.

De Loffre, S. M., capt., relieved from duty at Fort Bliss, Texas, in time to enable him to comply with this order and will proceed to San Francisco and take the transport to sail for the Philippine Islands about Jan. 5, 1911, for duty.

Manly, Clarence J., major, granted leave of absence for one month on surgeon's certificate of disability.

Phelan, Henry Du R., Med. Res. Corps, relieved from duty at Fort De Russy, Honolulu, H. T., and will take the transport leaving Manila April 15.

The following officers are relieved from duty in the Philippine Islands and will sail from Manila to the United States on the date named: Jan. 15, 1911: Moncrief, W. H.; Huntington, P. H., and Powell, W. A., captains, and Daywalt, George W., Med. Res. Corps. Feb. 15, 1911: Bloombergh, H. D., and Purnell, H. S., captains; Worthington, J. A., 1st lieut., and Le Hardy, J. C., and Lincoln, H. F., Med. Res. Corps. March 15, 1911: Davis, William B., colonel. April 15, 1911: Snyder, H. M., 1st lieut., and Bayley, E. W., and Ballard, J. C., Med. Res. Corps.

Hogan, David D., Med. Res. Corps, granted leave of absence for one month on his relief from duty at Fort Schuyler, N. Y.

Tetrault, C. A., Med. Res. Corps, at expiration of his present leave of absence ordered to Fort Michie, N. Y., for duty.

Medical Corps, U. S. Navy

Changes for the week ended Oct. 29, 1910.

Brownell, C. D., surgeon, detached from the *North Dakota* and ordered to await orders.

Pleadwell, F. L., surgeon, detached from the bureau of medicine and surgery, Navy Department, and ordered to the *North Dakota*.

Shook, F. M., passed asst.-surgeon, granted sick leave for one month when discharged from treatment at the Naval Medical School Hospital, Washington, D. C.

McDowell, R. W., asst.-surgeon, granted sick leave for two months when discharged from treatment at the Naval Medical School Hospital, Washington, D. C.

Cather, D. C., passed asst.-surgeon, detached from the *Iowa* and ordered to the *Delaware*.

Whitmore, G. B., asst.-surgeon, detached from the *Delaware* and ordered to the *Connecticut*.

McDowell, R. W., asst.-surgeon, detached from the *Connecticut*.

Brownell, C. D., surgeon, ordered to duty at the naval hospital, Los Angeles, Oct. 26.

Kelley, H. L., passed asst.-surgeon, commissioned passed asst.-surgeon from June 6, 1910.

Lawrence, H. F., passed asst.-surgeon, commissioned passed asst.-surgeon from Sept. 21, 1910.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Oct. 26, 1910.

Trask, J. W., asst.-surgeon-general, granted 2 days' leave of absence from Oct. 24, 1910.

Carmichael, D. A., surgeon, granted 19 days' leave of absence from Nov. 15, 1910.

McIntosh, W. P., surgeon, granted 21 days' leave of absence from Nov. 11, 1910.

Wertenbaker, C. P., surgeon, leave of absence for 4 days, from Oct. 20, 1910, amended to read 2 days.

Young, G. B., and Wertenbaker, C. P., surgeons, detailed to represent the service at the annual meeting of the Association of Military Surgeons, to be held in Richmond, Va., Nov. 1-4, 1910.

Stimpson, W. G., surgeon, directed to proceed to Delaware Breakwater (quarantine), Delaware, on special temporary duty.

Lavinder, C. H., passed asst.-surgeon, directed to proceed to Columbia, S. C., on special temporary duty.

Rucker, W. C., passed asst.-surgeon, directed to proceed to New York, Boston, Philadelphia and Baltimore on special temporary duty.

Frost, W. H., passed asst.-surgeon, granted 7 days' leave of absence from Oct. 18, 1910, under paragraph 191 of the Service Regulations. Granted 7 days' leave of absence from Oct. 25, 1910.

Ridlon, J. R., asst.-surgeon, relieved from duty on United States Revenue Cutter *Manning* and directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty.

Marsh, W. H., acting asst.-surgeon, granted 11 days' leave of absence from Oct. 29, 1910.

Tappan, J. W., acting asst.-surgeon, detailed to represent the service at the meeting of the International Medical Association to be held in El Paso, Texas, Oct. 27-29, 1910.

Wakefield, H. C., acting asst.-surgeon, leave of absence for 14 days from Oct. 10, 1910, revoked. Granted 7 days' leave of absence from Oct. 18, 1910, under paragraph 210 of the Service Regulations.

Wilson, J. G., acting asst.-surgeon, granted 21 days' leave of absence from Nov. 4, 1910.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

LODGE PRACTICE IN NEW YORK CITY

Lodge practice, with its evils and dangers, is a prominent factor in the practice of medicine in other countries, notably England. Its growth and possible influence on physicians in this country has been much discussed. Frequent instances of disputes between local lodges and local medical societies, in the past few years, abundantly prove that this evil is increasing. This is strikingly illustrated in an article by Dr. Morris J. Clurman, of New York City, in the *Medical Record* (Oct. 22, 1910, p. 717).

Dr. Clurman states that, in the lower East Side of New York City, there are at present between 1,500 and 2,000 lodges consisting of societies and benevolent associations, founded mainly by the poorer class of working men, for the double purpose of social intercourse and mutual aid. Each of these societies elects some physician to take care of the local society members. As Dr. Clurman says, such an arrangement would seem, at first sight, to be "reasonable, practical and eminently satisfactory," but, like Captain Cuttle's celebrated aphorism, "The value of the observation lies in the application of it." Dr. Clurman points out that the test of the value of such an arrangement is the practical manner in which its medical benevolences are administered. He gives a graphic picture of the experience of the lodge doctor 20 years ago and to-day:

"Twenty years ago, when lodge practice was in its infancy, societies would send humble delegates to some physician and ask him to accept the office of lodge doctor for a fair and reasonable consideration. In most cases, the physician thus approached would think twice before entering into such an agreement since, very naturally, routine family practice with its direct returns for every call seemed more remunerative than cheap contract practice. However, young and ambitious medical tyros naturally sought some means of getting patients to come to them and this seemed an easy way to help make both ends meet and also to obtain what seemed to be a legitimate and ethical way of advertising oneself.

"'Tis true that for some years all physicians who undertook such lodge practice found in it a wonderful stepping-stone toward obtaining a medical reputation. The lodge doctor found that he came in contact at the sick bed with a large class of patients who would not have patronized him in any other way. In time, however, the lodge physician, after establishing a reputation as a busy practitioner—and perhaps as a good one—became more or less independent. He discovered that it now paid him to disentangle himself from the onerous duties of the lodge doctor and once more to resume straightforward family practice. What with the advertisement he had received, the numerous families who had employed him in the capacity of lodge doctor and the normal growth of his regular practice, he now found that financial affairs went smilingly with him even after giving up these societies. Very naturally such shining examples of medical success and pseudo-prominence came to be regarded with envy by others in the East Side profession and more especially those of the younger element.

"Hand in hand with the increased number of physicians on the East Side a keen competition now arose among them to be elected as lodge physician in as many societies as possible. . . . But now the quilt had been reversed. It was the doctors who sought after the societies and not vice versa, as formerly. The societies found that, inasmuch as physicians were so anxious to be their lodge doctors, they could well afford to discriminate and choose from the numerous candidates.

"At first the chief qualification for a physician who wished to be a lodge doctor were his medical skill and knowledge, but . . . . it was not long before the physician with the best business instincts 'crawled and intruded' into the occupancy of these positions. The physician who knew how to ingratiate himself into the good-will of some of the individual leaders or more active members of these societies were almost invariably elected. At first, he simply had to be a 'good fellow' with them to become the holder of the coveted positions. In time, even that was not enough. He had to hold out more inducements, and these inducements naturally varied with the caliber of the men with whom he was dealing. Sometimes the judicious distribution of a few 'shekels' among the most influential of the society leaders brought the physician the necessary votes to elect him. Sometimes it was the unwritten promise of a bounteous blow-out to the members if he were elected. . . . It often happened that a worthy medical candidate would be defeated by his more Philistinic colleague. It is easy to see what a deplorable state of affairs such an unequal competition has naturally and inevitably brought about."

The above might well be headed "The Evolution of the Lodge Doctor." The introduction of contract methods, competitive bidding, unprofessional and undignified competition and the giving of unlimited services for limited and inadequate compensation must inevitably result in degeneration of professional standards and services. The picture presented is commended to the careful consideration of all physicians who contemplate engaging in lodge practice, in the belief that it will serve as a stepping-stone to something better. In the great majority of cases, the steps lead down and not up.

After an equally vivid description of a society election, at which three or four physicians are rival candidates, and an account of an actual instance in the practice of an East Side

lodge doctor, as illustrating the contempt in which the contract physician is held by his patients, Dr. Clurman continues:

"To-day there is scarcely an East Side working man who is not a member of some association which has a physician to take charge of its members. . . . With few exceptions the market price 'per head' is as follows: One dollar a year for the unmarried member and $3 a year for every married member, including his family. Let us not forget that the East Side working man, when married, does not believe in race suicide. For these terms he [the physician] is supposed to make as many professional visits in time of sickness as he is called on to do. Very often he may be called on forty or even fifty times a year by one family. Time and again he is called for the most trivial of complaints since his presence is so easily obtained."

Dr. Clurman is equally graphic in describing the effect of such a system on the young physician.

"Let us consider what little chance a young graduate now has on the East Side. If he happens to be a well-trained man from a good medical school, a hospital man and perhaps with a good preliminary medical education, it is all the worse for him. He will not be given a chance to practice medicine legitimately. A fair competition would be conducive to his medical progress, but when he discovers that commercialism has become the prime factor, it is not long before his lofty ideals are dragged and sullied in the dust. Especially is this true of the able but needy young practitioner. He soon discovers that the only way he can build up a practice is by getting lodges. Instead of devoting his spare time to perfecting himself in his medical knowledge he is compelled to devise ways and means for obtaining societies. The iron heel of necessity compels him to become proficient in the invidious art of winning out at society elections. His medical mind becomes warped, and instead of progressing ethically he gradually retrogrades into a proselyte of commercialism and a mere huckster of medical advice."

Dr. Clurman's description of the degeneration of the young and enthusiastic medical graduate to the "commercial huckster" who has not time to keep abreast of the advances in medical knowledge is perfectly in harmony with the facts and emphasizes the frequently reiterated statement that the commercial and ignorant physician is not only a menace to the profession but a positive danger to the community.

After describing a routine day's work of a lodge physician with eight or ten lodges to look after and arriving at the very natural conclusion that as a result of lodge practice "the lodge doctor becomes careless and slipshod in his medical ways," Dr. Clurman concludes:

"We are in too enlightened an age not to be able to remedy or at least to make lighter most evils, and the evil of lodge practice is one that can be solved and eradicated. To do this, vigorous and strenuous action must be taken by the East Side physicians. In the main it is only by a return to their medical ideals and by grappling these ideals to their souls with hooks of steel that they can solve this problem."

The only possible solution of the evils of lodge practice lies in the unanimous refusal of all competent and self-respecting physicians to engage in such work. County and local medical societies should discuss this question frequently and, above all, dispassionately and impersonally. Senior medical students should be told that such methods as a stepping-stone to independence and a competency are disappointing and lead, in the end, only to degeneration and ultimate degradation. Leaders of lodges and fraternal societies should be shown that competitive methods in the selection of professional men can lead only to securing the cheapest and poorest professional services and that the lodge that pays a pittance for its medical service can expect to secure only services commensurate in value to the compensation given.

Above all, the public should be informed that the lodge doctor is not a safe man to employ, since the large demands on his time and the number of calls required of him effectually prevent him from keeping abreast of medical progress and cause him to degenerate into a distributor of pills and draughts, careless in his methods of examination and hasty and often inaccurate in his diagnosis. When these facts are known election as a lodge physician will no longer be regarded as a desirable step to an independent practice and the incentive for such ruinous and unprofessional competition will disappear.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Month—Fourth Weekly Meeting

NEPHROLITHIASIS

ETIOLOGY AND PATHOLOGY: Age, sex, water, diet, habits. Changes in kidney structure.

CHEMICAL VARIETIES: (1) Uric acid and urates, (2) oxalate of lime, (3) triple phosphates. Shape, size and number of calculi. Uric-acid, sodium-urate, and lime infarcts.

SYMPTOMS: 1. Aseptic cases. Pain, colic, urine. 2. Septic cases. Urine, chills, fever, sweats. Physical examination.

DIAGNOSIS: Value of *x*-ray, of wax-tipped ureteral catheter, exploratory operation. Differentiation.

TUMORS OF THE KIDNEY

VARIETIES: Benign, adenoma, fibroma, lipoma. Malignant, hypernephroma, sarcoma, carcinoma. Cysts of kidney, simple, retention cysts, and polycystic disease.

SYMPTOMS OF TUMOR: Hematuria, pain, tumor.

OPERATIONS ON THE KIDNEY

NEPHROPEXY: Indications. Incision, sutures, Brödel's suture.

DECORTICATION OF KIDNEY FOR CHRONIC NEPHRITIS: History, indications, technic. (Edebohls: Surgical Treatment of Bright's Disease.)

NEPHROTOMY: Indications; technic in detail.

NEPHROTRIESIS.

NEPHROLITHOTOMY: Indications; technic.

NEPHRECTOMY: Total or partial, pericapsular or subcapsular, lumbar or abdominal. Technic in detail.

Monthly Meeting

The Significance of Hematuria, of Pyuria.

Indications for Nephrectomy; Technic of Operation.

Diagnosis for Treatment of Calculus in the Kidney; in the Ureter.

State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 8-9. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 11. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Little Rock, November 8-9. Sec., Dr. G. A. Hinton, Hot Springs.

CONNECTICUT: Regular, City Hall, New Haven, November 8-9. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, November 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Garde, New Haven, November 8. Sec., Dr. Thomas S. Hodge, 19 Main St., Torrington.

FLORIDA: Palatka, November 9-10. Sec., Dr. J. D. Fernandez, Jacksonville.

LOUISIANA: Homeopathic, New Orleans, November 7. Sec., Dr. John T. Crebbin, 1207 Maison Blanche Building.

MAINE: City Council Rooms, Portland, November 8-9. Sec., Dr. Frank W. Searle, 806 Congress Street.

MASSACHUSETTS: State House, Boston, November 8-9. Sec., Dr. Edwin B. Harvey.

NEBRASKA: State Capitol, Lincoln, November 9-10. Sec., Dr. E. Arthur Carr, 141 S. Twelfth Street.

NEVADA: Carson City, November 7-9. Sec., Dr. S. L. Lee.

TEXAS: Palestine, November 22-24. Sec., Dr. R. H. McLeod.

WEST VIRGINIA: Morgantown, November 14-16. Sec., Dr. H. A. Barbee, Point Pleasant.

Maryland June Report

Dr. J. McPherson Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 21-24, 1910. The number of subjects examined in was 9; total number of questions asked, 90; percent

age required to pass, 75. The total number of candidates examined was 117, of whom 95 passed and 22 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1907) 75; (1910)	79
College of Physicians and Surgeons, Chicago	(1908)	76
Johns Hopkins University (1910) 78, 80, 81, 82, 82, 83, 84, 84, 84, 85, 85, 86, 86, 88, 89.		
University of Maryland (1909) 75; (1910) 75, 75, 75, 75, 76, 78, 79, 80, 80, 80, 81, 82, 82, 83, 83, 83, 84, 84, 85, 85, 86, 86, 87, 89, 89, 89.		
Baltimore Medical College (1909) 75, 77; (1910) 75, 75, 76, 78, 80, 81, 81, 81, 82, 82, 83, 84, 84, 85, 85, 86, 87, 88.		
College of Physicians and Surgeons, Baltimore	(1907) 82; (1909) 81; (1910) 77, 82, 83, 84, 85, 86, 87, 88.	
Maryland Medical College	(1908) 76; (1910) 75, 79, 90	
Woman's Medical College of Baltimore	(1910)	79
Harvard Medical School	(1910)	82
Jefferson Medical College	(1910)	80, 91
University of Pennsylvania (1910) 75, 75, 78, 79, 81, 83, 83, 86, 87		
University of the South	(1908)	75
Queen's University, Kingston, Ontario	(1908)	86
University of Dublin, Ireland	(1877)	79
FAILED		
Howard University, Washington, D. C.	(1908)	72
Louisville and Hospital Medical College	(1908)	64
University of Maryland (1903) 56; (1909) 61, 66; (1910) 61, 66, 71, 72, 72, 73, 73.		
Baltimore Medical College	(1901) 48; (1904) 67; (1910) 67, 68	
Maryland Medical College	(1907) 65; (1909) 65; (1910) 53, 65, 70	
University College of Medicine, Richmond	(1908)	55

The following questions were asked:

ANATOMY

1. Give a general classification of bones and name a bone in each class. 2. Name structures transmitted through any four of these six foramina: foramen magnum, jugular foramen, sphenoidal fissure, foramen ovale, foramen rotundum, optic foramen. 3. What bones enter into formation of the nasal fossæ? 4. Name cavities of the heart and describe the valves. 5. Locate the imaginary lines dividing the abdominal cavity into regions. Name regions and state contents of lower central region. 6. Describe the lachrymal apparatus. 7. Through what arteries is the collateral circulation carried on after ligation of subclavian artery (lower third)? 8. Locate and describe Peyer's patches. 9. What nerves supply the tongue? 10. Give origin, insertion, action and nerve-supply of the latissimus dorsi and biceps femoris muscles.

MATERIA MEDICA

1. What are alkaloids? What is an infusion? What is a decoction? Define fixed and volatile or essential oils. 2. Give two remedies of the following classes and the doses of each: galactagogues, sialagogues, emetics, antiseptics, anthelmintics, diuretics, antipyretics. 3. Give six official preparations of iron used internally, and give dose of each. 4. Cinchona: Mention the most important preparations and their doses. 5. Arsenic: Mention the official preparations and average dose of each. Give the official antidote for arsenical poisoning and how prepared. 6. Name five official acids used internally and give dose of each. 7. Name three preparations obtained from the animal kingdom and give source of each. 8. Give six official preparations of mercury used internally and dose of each. 9. Name five official powders, composition and dose of each. 10. Write a prescription using official terms containing compound tincture of gentian, tincture of nux vomica and bicarbonate of soda. Write one containing reduced iron, arsenious acid, sulphate of strychnin and sulphate of quinin. One containing digitalis, nitrate of potassium and extract of buchu. One containing pepsin, subnitrate of bismuth and paregoric.

OBSTETRICS

1. Give general directions and preparation of the patient for labor and delivery. 2. What anesthetic should be used in labor, and the indications for use of each? 3. What conditions demand the emptying of the uterus prior to quickening, and what is the technic of the procedure? 4. What indications require the use of forceps, give the method of using them and the dangers of their use to mother and child. 5. What is the mechanism of labor in a breech presentation? 6. Describe Credé's method of expressing the placenta. 7. What are the common causes of hemorrhage during and after labor? 8. Give indications for and method of amputation of the cervix uteri. 9. Give causes and treatment of pelvic peritonitis. 10. What are the dangers to be avoided in performing a dilatation of the cervix and curetting of the uterus?

SURGERY

1. What are the signs of intestinal perforation in typhoid fever, and what is the surgical treatment? 2. Describe what is generally known as the radical operation for the cure of cancer of the breast. 3. Describe intubation of the larynx, laryngotomy and laryngotracheotomy. Give indications for each. 4. Give symptoms and treatment of acute catarrhal conjunctivitis. 5. Describe phimosis, paraphimosis, hypospadia, epispadia. 6. Describe two operations for cancer of the stomach. 7. Define the following operations: (a) enterotomy; (b) enterostomy; (c) entero-anastomosis; (d) enterectomy. 8. Define and describe the following diseases of the hip: (a) coxitis; (b) coxitis tuberculosa; (c) coxa vara. 9. Describe exstrophy of the bladder, cause and treatment; (a) palliative; (b) operative. 10. Describe mastoiditis, acute and chronic, causes and treatment of each.

CHEMISTRY

1. Define (a) chemistry, (b) chemical compound, (c) chemical affinity and (d) chemical reagents. 2. What does the presence of an abnormal quantity of chlorin in drinking water indicate? Give tests to determine its presence. 3. State the names and the general chemical and physical properties of the "halogens." 4. State of the two chlorids of mercury: (a) their names, (b) chemical formulas, (c) composition, (d) solubility, (e) color and other properties. 5. What are normal and decinormal solutions and how are they made? 6. Complete the following equations:

$FeSO_4 + K_2CO_3 =$
$NH_4Cl + KNO_3 =$
$PCl_3 + 3H_2O =$
$Zn_2 + 2HCl =$
$NH_3 + HCl =$

7. (a) State the specific gravity of normal urine, (b) causes of deviations in the specific gravity of urine, and (c) What is the reaction of urine during the formation of phosphatic calculus? 8. Give a chemical test for each of the following: (a) proteids, (b) phenol, (c) lactic acid, (d) amylum, (e) creosote. 9. State of silver nitrate: its composition, properties and names by which it is known. 10. (a) Give tests and antidotes for nitric acid. (b) What are amalgams? (c) What are "indicators?" (d) Give a brief outline of the differences between "leucomaines" and "ptomaines." (e) What kinds of blood are distinguished and give the differences between them?

PRACTICE

1. Define (a) enteroptosis, (b) Ludwig's angina, (c) purpura, (d) myxedema, (e) angina pectoris. 2. Define (a) rabies, (b) ascaris lumbricoides, (c) empyema, (d) cholelithiasis, (e) dysphagia, and give some of the causes. 3. Give differential diagnosis between measles and scarlet fever. 4. Give differential diagnosis between serofibrinous pleurisy and pneumonia. 5. Give differential diagnosis between hysteria and epilepsy. 6. Give treatment of a case of typhoid fever and the most frequent complications. 7. Give treatment of early pulmonary tuberculosis and state in detail what methods should be employed to prevent contagion from such a case. 8. Name types of chronic nephritis and symptoms of each type. 9. What diseases are likely to occur in the right inguinal region? 10. Give symptoms and treatment of gastric ulcer.

THERAPEUTICS

1. Name five antispasmodics and the general indications for their use. 2. Write two prescriptions in Latin, each containing four ingredients, one in dry, the other in liquid form, with directions for administration, and state the condition for which they are to be used. 3. What is an antitoxic serum? Name disease most amenable to serum therapy; give source of serum and describe method of administration. 4. What are the therapeutic uses of opium? Strychnin? Describe symptoms of poisoning by each. 5. Give the indications for venesection and describe the operation. 6. Give the physiologic action and therapeutic uses of colchicum. 7. Give the physiologic action, therapeutic use and effect of overdose and constant use of digitalis. 8. Describe purpose and method of introduction of vaccine lymph into human system and physiologic manifestations. 9. Give mode of action of cardiac sedatives, cardiac stimulants, cardiac tonics; name three of each. 10. What is meant by the terms "antagonists," "antidotes?" Describe uses and mode of action.

PATHOLOGY

1. State the method you would use in preparing a specimen of fresh kidney tissue for microscopical examination. 2. State the general principles of the methods used in isolating and identifying bacteria. 3. How would you prepare a specimen of sputum in order to demonstrate the presence or absence of tubercle bacilli? 4. Give the life history of the *Trichina spiralis*, and the pathology of a case of human trichinosis. 5. If you were given two specimens of serum and told that one was human and the other bovine, how would you proceed to differentiate them? Or, what is anaphylaxis, and what alarming symptoms are sometimes due to this phenomenon? (Answer either one of the above, but not both.) 6. What would you expect to be the macroscopic appearances of the abdominal viscera in a patient with typhoid fever dying of hemorrhage in the third week of the disease? 7. State in the order in which they occur the changes which lead from healthy lung tissue to a healed tuberculous cavity. 8. What changes, not local, may be noted during the course of, and what sequelæ may follow, an attack of diphtheria? What is the best way to prevent these changes, and why? 9. What is arteriosclerosis? What are the common causes leading to this condition? Mention its effect on the heart and kidneys. 10. What changes in the brain may lead to, occur in, and follow a stroke of apoplexy, the effect of which is paralysis of the right side?

PHYSIOLOGY

1. (a) What is meant by muscular contraction? (b) What effect has temperature or veratrin on muscular contraction? (c) What is the difference between simple and compound or tetanic contraction, and what are the chemical changes in the muscle during contraction and rigor? 2. State briefly the general physiology of the nerve-cell and what is meant by the neuron doctrine? 3. (a) What is meant by the knee-jerk? (b) What use are the knee-jerk and spinal reflexes as diagnostic signs? 4. What changes take place during sleep, and what are the neuron and anemia theories of sleep? 5. Give the composition of the blood, its reaction, specific gravity, temperature, difference between arterial and venous, the amount in the body and the time required for a complete circulation. 6. What is meant by blood-pressure and how determined? (b) What effect has menstruation on blood-pressure? (c) What effect has the blood-pressure in the arteries on the pulse rate? 7. Give the difference in each ingredient, between inspired and expired air, (b) the effect of work on the respiratory movement, (c) the cause of the first respiratory movement. 8. Give composition and specific gravity of the saliva and the gastric juice, and the composition and physiologic action of the pancreatic secretion; (b) which is the only secretion in the body containing a free acid, and what is the acid? 9. State the general physiologic importance of bile, and what would be the effect of complete occlusion of the bile duct. 10. Name the nerves of the submaxillary gland, and state in full the effect of stimulating each. (b) What is meant by the paralytic "secretion?"

Book Notices

LIPPINCOTT'S NEW MEDICAL DICTIONARY. A Vocabulary of the Terms Used in Medicine and the Allied Sciences, with their Pronunciation, Etymology, and Signification, Including Much Collateral Information of a Descriptive and Encyclopedic Character. By Henry W. Cattell, M.D., Editor of "International Clinics." Flexible Leather. Price, $5. Pp. 1,108, with illustrations in the text. Philadelphia: J. B. Lippincott Co., 1910.

This dictionary possesses a number of excellent features, some of which are innovations, and a few less excellent. It appears to offer copious information, well arranged, and made more accessible by a good system of cross-references. The practice of referring to current literature and to other works of reference is a commendable one. Another satisfactory feature is the arrangement of such terms as "Krause's corpuscles," "van't Hoff's law," "Noguchi's method" under "Krause," "van't Hoff," and "Noguchi" instead of under the generic portion of the term. Since the proper name is constant and the generic word often variable (for instance, one person will speak of the "Wassermann method," another of the "Wassermann test," and a third of the "Wassermann reaction"), arrangement under the generic word is apt to be unsatisfactory. Preference is given throughout to arrangement under specific instead of general heads. In some instances this results in making information somewhat less readily accessible; for example, there are no tables of muscles, nerves, etc., from which each one can be picked out at a glance. Some items of information appear to be lost entirely in the shuffle; for example, we are unable to find Mallory's and Van Giesen's stains, either under "stain" or under "Mallory" and "Van Giesen." The definitions of proprietary substances are, as a rule, good.

A blemish which is not peculiar to this work is the insertion at separate points in the vocabulary of two forms of the same word, as, for instance, "gastrenteralgia" and "gastroenteralgia," without cross-reference from one to the other or any indication of preference.

It is difficult to understand the principle which guided the selection of illustrations; for instance, portraits, however eminent the subjects, seem out of place in a work which makes no pretense of occupying the place of a biographical dictionary; and it seems equally unsuitable to fill space in a medical dictionary with illustrations showing elementary botanical facts.

The work is made a guide to capitalization by confining the use of capitals to words which are always capitalized, such as proper nouns. This is a very useful feature. It is a pity that this dictionary could not also have distinguished abbreviations from symbols and uncontracted words in the vocabulary by omitting periods after the unabbreviated expressions. Phonetic pronunciation is not given, but division of words into syllables is indicated. The spelling "anæsthesia," "œsophagus," etc., are preferred to "anesthesia," "esophagus," which is to be deplored as a step backward.

On the whole, however, the book is a very creditable and useful piece of lexicography.

THE DIAGNOSIS OF SMALLPOX. By T. F. Ricketts, M.D., Medical Superintendent of the Smallpox Hospitals and of the River Ambulance Service of the Metropolitan Asylums Board. Illustrated from Photographs by J. B. Byles, F.R.C.S., Senior Assistant Medical Officer at the Smallpox Hospitals of the Metropolitan Asylums Board. Cloth. Price, $6 net. Pp. 154, with 136 illustrations. New York: Funk & Wagnalls Co., 1910.

The authors of this book have seen small-pox and write from knowledge gained through personal experience with the disease. This fact gives confidence and assurance of safe guidance to the inexperienced when struggling to make a diagnosis with information derived from books alone. The book, though not free from serious faults, is a painstaking and valuable presentation of the diagnosis of small-pox. The authors have especially emphasized the value of the distribution of the small-pox lesions as an aid to diagnosis. The distribution of the eruptions in small-pox has always been of much value in making a diagnosis, and we should never neglect to scrutinize closely the location of the lesions and give due weight to the findings, but the authors have laid greater stress on the distribution of the lesions as a guide to diagnosis than is generally given to this feature of the disease. They really overestimate this factor in diagnosis, but it is gratifying to see this feature of small-pox so thoroughly presented. An experienced diagnostician will not depend on this sign with as much confidence as the authors would have him, and the inexperienced who rely on it to the extent advised will certainly come to grief. It is but fair to say, however, that the authors, after discussing distribution, call attention to the numerous exceptions to the rule which they make so prominent.

The illustrations are good and give as perfect a picture of the skin lesions as the photographic art can make. For the most part, they are in duplicate; that is, two pictures of the same subject are placed side by side on the same page, to be viewed through a stereoscope. They are perfect enough for diagnostic purposes when viewed by the unaided eye, but seen through a stereoscope the picture is almost as satisfactory as that seen when looking at the living subject.

There is, however, a very serious fault in presenting all these fine photographs, and no doubt the authors have discovered it before this. Certainly they will see the fault as soon as their attention is called to it. In order to make a diagnosis in small-pox it is of the greatest importance that we know the life history of a lesion; that is, how many days old the lesion is. A photograph of a case of chicken-pox on the fifth day of the eruption may look to the eye identical with a photograph of a case of small-pox on the twelfth day of the eruption. For example, Plate XIV is said to be from a photograph of a case of small-pox; but no one could make the diagnosis of small-pox from the picture without knowing the number of days these lesions have existed. If it is small-pox, it is the twelfth or thirteenth day of the eruption. If the case looks like this on the fifth day it would certainly be chicken-pox. And distribution in this very picture would not save the diagnostician from error if he knew not the day of the eruption. Plate CIX shows chicken-pox; and the lesions must be not more than five days old. Hundreds of cases of small-pox look like this when photographed on the twelfth or thirteenth day. An experienced diagnostician could make the diagnosis in these cases, perhaps, without knowing how old the lesions are; but in this book photographs are used to teach the inexperienced; and this cannot be done if the day of the eruption is not known. This is a defect that can easily be remedied in a second edition. The day of the eruption should be noted below all the photographs.

The colored plates are valuable to those who are not familiar with the natural color of the eruptions of the various diseases presented. These are taken by the Sanger-Shepherd process and give the natural color of the skin lesions.

The chapter on vaccination is sound and can be safely followed. The publishers have done their work well, not forgetting to name a high price for the book—six dollars.

AIDS TO MICROSCOPIC DIAGNOSIS (BACTERIAL AND PARASITIC DISEASES). By Ernest B. Knox, M.D., Diplomate in Public Health (Honors), Royal Colleges of Physicians and Surgeons, Ireland. Cloth. Price, $1 net. Pp. 156. New York: William Wood & Co., 1910.

This is practically an epitome, and is intended to serve the purpose of a review of the subject only. The title is misleading, because the book contains much that is entirely foreign to microscopic diagnosis, such as prophylaxis and treatment, and inasmuch as other works cover the same ground to better advantage, there really does not seem to be any *raison d'être* for this book.

AMERICAN RED CROSS ABRIDGED TEXT-BOOK ON FIRST AID: A Manual of Instruction. Industrial Edition. By Major Charles Lynch, Medical Corps, United States Army and First Lieutenant M. J. Shields, Medical Reserve Corps, United States Army. Prepared for and endorsed by the American Red Cross. Paper. Price, 30 cents net. Pp. 175, with 49 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

This book is a manual of instructions for workers in the industrial field with especial reference to mine workers, abridged with great care from the "American National Red Cross Text-Book on First Aid and Relief Columns," by the same author, prepared for, and endorsed by, the American National Red Cross.

Medicolegal

Constitutionality of Order of School Board Requiring Vaccination

The Court of Civil Appeals of Texas says, that it was contended in the case of McSween vs. Board of School Trustees of the City of Fort Worth (129 S. W. R. 206), that an order of the school board, requiring the vaccination of pupils as a condition precedent to attendance in the public free schools of the city, was in contravention of the provision of the state constitution, that "the legislature may pass laws prescribing the qualifications of practitioners of medicine in this state and to punish persons for malpractice, but no preference shall be given by law to any school of medicine." But the court does not agree with the contention, because, as shown by the language quoted, it is evident that the restriction therein imposed was intended to apply to legislation only which might be enacted prescribing the qualifications of practitioners of medicine.

Furthermore, the order adopted by the school board, excluding from the schools all pupils who should refuse to be vaccinated unless successfully vaccinated already, merely prescribed a condition on which the right of pupils to attend the schools should depend. It gave the pupils who had not been successfully vaccinated the choice to be vaccinated and attend school, or to refuse to be vaccinated and remain out of school until the danger of small-pox had passed. It did not compel vaccination, and, therefore, was not in violation of the provision of the state constitution that "the people shall be secure in their persons, houses, papers and possessions from all unreasonable seizures or searches.

Nor does the court agree with the contention that the power vested in the board of city commissioners, by the city charter, to enact laws, rules and regulations for the promotion of health and the suppression of disease, left the school board without authority to adopt the order complained of. The provisions in the city charter that the board of school trustees should adopt such rules, regulations and by-laws as they might deem proper, and that the free schools of the city should be under the control and supervision of such board, which should have the power to control, manage and govern said schools in all things and matters, etc., were sufficiently comprehensive to include the delegation to the school board of authority to pass the order. In case of an epidemic of small-pox, unquestionably it could have closed the schools temporarily, if the trustees should be convinced that to continue them would result disastrously to the health of the pupils. Such an order would have excluded all pupils, and it would have been valid even though the purpose of its adoption were to protect the health of the pupils. It cannot be said that in the adoption of the city charter the legislature intended to deny the school board power to adopt sanitary regulations for the schools. Indeed, the court thinks a contrary intention was apparent from the provisions of the charter with reference to the powers of the school board. If correct in this, the board was authorized to adopt any reasonable regulation to effect the purpose sought to be accomplished.

The order in question was the exercise of police power for the protection of the pupils of the public schools, and, therefore, was not unconstitutional as depriving of liberty without due process of law.

Legal Insanity and Epilepsy

The Supreme Court of Wisconsin says, in Oborn vs. State (126 N. W. R. 737), that the term "insanity," as used in the special plea in a criminal case, means such abnormal mental condition, from any cause, as to render the accused at the time of committing the alleged criminal act incapable of distinguishing between right and wrong, and so unconscious at the time of the nature of the act which he is committing, and that commission of it will subject him to punishment. True, there are things in some of the cases liable to lead to the belief that legal insanity may exist if, though the person be fully conscious of the wrong and its punishable character, he because of a perverted mind, is moved by an uncontrollable impulse.

This court, however, is not committed to the doctrine that one can successfully claim immunity from punishment for his wrongful act, consciously committed with consciousness of its wrongful character, on the ground that, through an abnormal mental condition, he did the act under an uncontrollable impulse rendering him legally insane. One, at his peril of punishment, commits an act while capable of distinguishing between right and wrong, and conscious of the nature of his act. He is legally bound, in such circumstances, to exercise such self-control as to preclude his escaping altogether from the consequences of his act on the plea of insanity, though his condition may affect the grade of the offense. Thus far the charity of the law goes and no farther.

Nor does proof of epilepsy necessarily directly establish insanity, as epilepsy is not, as a matter of fact or law, insanity, though evidence of an epileptic condition may bear, circumstantially, on the mental condition of the afflicted person to the extent of establishing insanity. As the court reads the cases cited to it, they are to the effect that a person may be an epileptic and be perfectly responsible for his actions, except when suffering from an epileptic disturbance, called a fit; that epilepsy may cause insanity, but does not constitute it, and the two should not be confounded. That a person afflicted with insanity may yet have capacity to distinguish between right and wrong, and if so he is legally sane. That it is not sufficient to establish irresponsibility to show epileptic affliction, but it must be shown by evidence as a fact that epilepsy is a disease which affects the mind, or produces insanity, and that there was legal insanity in the given instance.

Therefore, whether the accused, in any given case, was afflicted with epilepsy, and if so whether the affliction was a mental disease or had impaired his mind, and if so whether sufficiently to render him unable to appreciate between right and wrong, are matters of fact to be established by evidence.

Pregnancy, Childbirth, Sound Health and Insurance

The Supreme Court of Idaho holds, in Rasicot vs. Royal Neighbors of America (108 Pac. R. 1048) that an agreement or stipulation in a contract of insurance made with a married woman that the policy shall not go into effect unless it is delivered to her "while in sound health" is not violated by reason of the applicant being pregnant at the time of the delivery of the policy.

Pregnancy, the court says, is not *per se* a condition of "unsound" health, nor is it a "disease" or "ailment" within the meaning of those terms used in this application and policy. The term "sound health" has been frequently defined by the courts, and, so far as the court is advised, it has never been held that this term used in an insurance policy or certificate covered every slight ailment or indisposition of health of a temporary character which does not tend directly to shorten the life or undermine the constitution of the insured. So far as the court is informed, this term of itself and standing alone has never been held to cover or include a case of pregnancy.

So, also, a statement made by a married woman who applies for insurance in a fraternal benefit society that she has not consulted with a physician "in regard to a personal ailment" within the last seven years does not cover a single attendance by a physician on the applicant some three years prior thereto when she was confined and gave birth to a child. Confinement in childbirth is not a "personal ailment" within the meaning of such a provision in the contract. Childbirth is a physiologic fact which occurs in the regular course of Nature, and neither signifies nor entails disease or ailment in the usual and ordinary use of those terms.

But, besides all this, the court holds that where a fraternal benefit society received an application from a woman for insurance which warranted the literal truth of the answers given by her, and she represented, and at the time honestly believed, that she was not pregnant, when in fact and truth she was, and the contract provided that the society would

not become liable in such a case and that it would not consider such an application until at least two months after confinement, and the society collected and received dues, assessments and premiums from the insured for a period of nearly five years thereafter, during which time the applicant was in good health, the insurance society will be held to have waived the right to insist on a breach of the contract for the falsity of the answer.

Society Proceedings

COMING MEETINGS

Am. Assn. for Study and Prev. Infant Mort., Baltimore, Nov. 9-11.
Hawaiian Territorial Med. Assn., Honolulu, Nov. 26-28
Ohio Valley Med. Assn., Evansville, Ind., Nov. 9-10.
Southern Medical Assn., Nashville, Nov. 8-10.
Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15.
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Fort Wayne, Sept. 28-30, 1910

The President, DR. T. C. KENNEDY, Shelbyville, in the Chair

Officers Elected

A list of the officers elected was published in THE JOURNAL, Oct. 8, 1910, p. 1293.

The Wassermann Reaction and Its Value to the Physician

DR. W. T. MEFFORD, Chicago, besides giving the general principles in regard to the uses of the Wassermann test, reported his experience in this work. The value of the test was shown particularly in cases of obscure diagnosis in which the reaction proved positive, and in which the patient then being put on mercurial treatment, rapidly improved.

Serodiagnosis of Syphilis

DR. J. P. SIMONDS, Indianapolis: The phenomenon of bacteriolysis, first demonstrated by Pfeiffer in 1894, gave to the study of immunity an importance it had not before possessed. It has been shown that:

1. There is in the blood serum of a syphilitic patient an antibody which, in the presence of extract or syphilitic liver or solution of lecithin, has the power of binding or absorbing complement, and thus of preventing hemolysis when red-blood corpuscles and hemolytic amboceptor are added.
2. This principle has been utilized in a test which is highly specific for syphilis, so that we are probably justified in saying that any patient whose serum gives a positive reaction still harbors the syphilitic virus.
3. This test is of unquestionable value to the practitioner in differential diagnosis, in solving the difficult problem of when a syphilitic may safely marry, and, if not in actually controlling, at least in directing the treatment of the patient.

Discussion on Serodiagnosis of Syphilis

DR. C. G. BEALL, Fort Wayne: Following the Wassermann announcement of this test for syphilis, many attempts have been made to determine the presence of syphilitic virus by simpler methods. Principal among these was an attempt to get a precipitate in the serum of luetic individuals by means of a solution of liver salts. The consensus of opinion now is that the precipitate test was practically worthless. A more simple recent test is that of Nicolas, Favre and Gautier, by the introduction beneath the skin of a preparation called syphiline, which is a syphilitic extract. Like tuberculin, it is used on and beneath the skin. Results have been reported in fifty cases, and in 42 per cent. they agreed with the Wassermann reaction. Another test for the same purpose has been the cobra-venom test. However, this has the same objections that the Wassermann has or the Noguchi modification, because of the experience that is necessary to obtain reliable results. Recently it has been found that the reaction occurs frequently after ether narcosis. I have made about forty tests, and they agreed fairly well with the clinical diagnosis, yet my results are not to be relied on, because of the extreme technical skill required in making the test, and the number of errors that are apt to appear. Kaplan made 300 tests before he felt competent to draw any conclusions. Naturally, this puts the test beyond the ordinary man's power.

DR. C. F. NEU, Indianapolis: It is unfortunate that in a test that is apparently so valuable there are so many difficulties in the application. When one takes into consideration the details that have to be watched, and the minutiæ so necessary to carry out the operation, one can readily understand that it is not practical for the ordinary practitioner. It can be carried out only by one who devotes his time and attention to laboratory methods.

It should be borne in mind that the tests are negative in from 8 to 10 per cent. of cases in which there is positive evidence of syphilis, and the positive reaction is given in other conditions besides syphilis. The Wassermann reaction has been reported positive in cases of scarlet fever, tuberculosis, leprosy, meningitis and malignant growths. It is true that there might have been some syphilitic conditions present, but the mere facts that in from 8 to 10 per cent. of syphilitic cases the Wassermann reaction was negative, and that a positive reaction is obtained in other conditions besides syphilis, makes it very important that these points be kept in mind.

DR. W. R. DAVIDSON, Evansville: The consensus of opinion seems to be that the test should be limited only to expert laboratory workers, and yet almost in the same breath the recommendation is made that everybody who treats lues should make this test. If the work is good, certainly it should be carried out more extensively; but in the nature of things it would be impossible for me, for instance, to make this test every day. Would it be advisable for me to go on and work with it?

DR. H. R. ALBURGER, Bloomington: I think that the wisest plan for the man doing ordinary clinical diagnosis, if he does want this test, is to put it in the hands of a man who is specializing on it. I believe it is only a question of a short time until this test will be put on a practical basis for general use, but the general practitioner must as yet depend on the men in the laboratories to do that sort of work for him. I believe that the reason we get positive results in cases that are negatively syphilitic is that we have all inherited some immunity to syphilis.

DR. JOHN A. MACDONALD, Indianapolis: Dr. Alburger has perhaps unintentionally sounded a note of warning. By the very nature of the work it must be in the hands of men who are prepared to do it. There are few men in any community who are prepared to do this work correctly. If we overload them with work we shall get unsatisfactory or delayed results. This, however, does not impair the value of the reaction; it should only produce an economy in its use. If we limit its use to decisions of the possibility of marriage in certain forms of syphilis or to those cases in which doubt arises, and to conditions of the central nervous system, then we have done quite enough at the present time.

There are two diseases which are very similar in our hands—syphilis and malaria. If an error of 8 per cent. in the Wassermann reaction be admitted, we must go right back to the therapeutic test. Consequently, we give a man quinin and iron and the usual treatment for malaria, and with the patient with suspected syphilis we go ahead and give him mercury, and he recovers or improves if he has syphilis.

DR. THEODORE POTTER, Indianapolis: Dr. Davidson's question remains unanswered. The most important feature of this question, I think, is to get the mass of the profession to understand what a test of this sort is and what a laboratory method is, and to use it rationally and operate with the laboratory men. We have the idea that laboratory tests are perfect and infallible, and we misjudge the reports of the laboratory men and do harm to the whole cause. It was so with the examination for tubercle bacteria. It is so still in many instances; if the patient's sputum is examined for tubercle bacilli with negative results, the physician often and the patient generally conclude that the latter is not tuberculous. We are to blame for such misinterpretation. We should join with the laboratory men in working the matter out, but we should not make the mistake of thinking that the reports are all infallible, or that the test is always absolutely final.

I like Dr. McDonald's suggestion that, so far as possible, we reserve the application for the test to cases in which it is really needed, and not call on the laboratory men to make the Wassermann test in a perfectly plain case of syphilis.

DR. W. T. MEFFORD, Chicago: All laboratory men and men who have written on the technic make it seem extremely difficult. They frighten people from attempting to learn it. It is a very simple matter. There is not a man or woman here whom I cannot teach to do this test in two days. The materials are standardized and prepared all ready for use, and anyone can take the serum and do the work after one or two days' experience. The best laboratory worker we ever had was a young woman 18 years old, and it was not two weeks until she was doing the work as perfectly as I could. One afternoon I taught another to do laboratory work for Dr. Butler, who is an expert in the Wassermann test, and he told me that she was as good a worker as he ever saw. In my opinion we all ought to learn to do this test. The materials necessary are: an incubator ($35), a centrifuge ($30) and a few test-tubes. Langstein introduced the drop method of doing this work. I use it and find it absolutely correct. As to the absolute necessity of having all the materials exact, it is necessary to have exact only the luetic liver, the serum, the complement and the amboceptor. Ten drops of the salt solution can be put in a test-tube and it works just as well as another amount. Some corpuscles give off more serum than others, so one will not have the exact number of corpuscles anyway.

DR. J. P. SIMONDS, Indianapolis: My experience has convinced me that the serum test for syphilis is by no means a simple one; that it is exceedingly delicate and useful; but that if improperly done it may lead to great confusion in diagnosis. The mere mechanical manipulation of reagents and apparatus necessary to making the test is comparatively simple. But in all work in hemolysis the opportunity for error is very great and often comes from sources entirely unexpected. Hence I do not believe that the work of a man who knows only the mechanical side of the test without a thorough knowledge of the underlying principles can be relied on. Unless one has accurate amounts of amboceptor one is likely to get either a positive or a negative reaction where one should not. The only way to determine the amount which is accurate is to restandardize very often. This applies to the antigen, which must be restandardized occasionally. In order to restandardize reagents one must understand the principles of hemolysis. Mere mechanical skill is not sufficient. It is often stated that reagents dried on filter-paper will keep almost indefinitely. At the Indiana State Laboratory we had one test-tube of the fluid serum and a lot of the dried filter-paper slips. For some reason, to our great surprise, the serum that was dried on the filter-paper deteriorated first. That is entirely contrary to the teachings of the text-books. Our fluid serum has lost very little of its original potency, but had to be restandardized. This experience is an illustration of the unexpected things that may happen.

As a further illustration of the ease with which a mistake may occur, it has been found that a very slight variation in the acidity of the reagents may entirely change the results of the test. Sachs and Altman tested serum with reference to the influence of alkalinity on the reaction, and found that if 1/800 to 1/3,200 normal sodium hydroxid solution were added, the syphilitic reaction with known positive serums could be abolished. But if to this alkaline serum enough hydrochloric acid was added to bring it back to the proper reaction, a positive result would be obtained. Not infrequently, an exceedingly slight variation in the alkalinity or acidity of a serum, such as might be produced by unclean test-tubes, may entirely vitiate the result. I must say, however, that Sachs and Altman found that varying the reaction in non-syphilitic serums would never make them react positively. I believe that the test done by the average busy practitioner would give results more confusing than enlightening, and that it should, therefore, be done only by regular laboratory workers who are well equipped with all necessary apparatus and who thoroughly understand the principles of hemolysis.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixtieth Annual Meeting, held at Pittsburg, Oct. 3-6, 1910

(Continued from page 1582)

Treatment of Croupous Pneumonia

DR. G. W. NORRIS, Philadelphia: The most important therapeutic indication in pneumonia is to prevent toxemia. Many of the drugs employed are worse than useless. Serotherapy has proved of no value, as also that with leukocytic extracts. It is still too early to be dogmatic concerning the efficacy of vaccine therapy, although the results so far have been somewhat promising. Death in pneumonia is generally the result of toxemia, and, to a considerable extent, is independent of the amount of pulmonary involvement. In its production vasomotor failure plays a much more prominent part than heart failure. This fact is still not sufficiently appreciated, and hence treatment is often misdirected and inefficient. All drugs and methods of treatment which tend to lower blood pressure are therefore contraindicated.

Public and Private Aspects of the Pneumonia Question

DR. W. C. WHITE, Pittsburg: I here suggest two plans for a systematic crusade against pneumonia: (1) the discovery of a specific cure; (2) the inauguration of a popular campaign of education and instruction in the laws governing the prevention and cure of pneumonia similar to, and involving the same scope as the plan already utilized for the reduction of the mortality from tuberculosis.

Effect on the Different Forms of the Leukocytes in Cases of Tuberculosis Produced by Some Therapeutic Measures

DRS. SOLIS-COHEN AND STRICKLER, Philadelphia: One hundred and thirty-five leukocytic counts were made on 25 patients with pulmonary tuberculosis. Bier's suction hyperemia in cases suitable for this treatment causes an increase in the proportion of lymphocytes and of polynuclear cells with one and two nuclei. Application of fly blisters every five days and the absorption of the serum cause an increase in the proportion of polynuclear cells with one and two nuclei, and, in most instances, an increase in the proportion of lymphocytes. Iodin in the form of iodoform, administered by mouth, causes an increase in the proportion of polynuclear cells with one and two nuclei. Creosote given in the form of the carbonate, as a rule, causes an increase in the proportion of the lymphocytes and of polynuclear cells with one and two nuclei. Nuclein seems to cause an increase in the proportion of polymorphonuclear neutrophils. The effect produced in the blood by many therapeutic measures is not, as a rule, maintained indefinitely, but only for a variable period, averaging about a month.

Enuresis from Thyroid Insufficiency

DR. E. BOSWORTH MCCREADY, Pittsburg, read this paper, in which he formulated the following conclusions: 1. There is a large class of individuals which includes many of those who, as children, show various developmental defects, whose condition may be traced to a primary defect in the ovum, resulting from disease in the progenitors. 2. The resulting cell hypoplasia involves the structural elements of the ductless glands. 3. Enuresis is a very common symptom of hypoplasia. 4. The administration of thyroid extract will not only relieve the enuresis, but will also cause a marked improvement in the general physical and mental condition.

Mental Disturbance Following Traumatism. Medicolegal Considerations

DR. ALFRED GORDON, Philadelphia: I have studied thirty-seven cases during a period of 8 years, and have formulated the following conclusions: Trauma may be a determining cause of abnormal psychic manifestations, following immediately, or sometime later. Their appearance weeks after the shock excites the suspicion of their existence in a mild form immediately following the accident. Confusional states and delirium are the most frequent forms of insanity following traumatism.

Dementia may be the ultimate result of persistent confusional and delirious states. Traumatic psychoses do not present a strictly defined morbid picture, but present a great variety of psychic manifestations.

Present Status of Psychotherapy

DR. E. E. MAYER, Pittsburg: Physicians should well understand what they mean by the term psychoneurosis. We are apt to speak of neurosis when we do not mean neurosis. For example, we refer to gastroneurosis, when we know there is no underlying physical defect, but a mental factor at play and, therefore, that the condition is not a gastric condition, but a psychic state. That which should be done is to get at the patient's mental state, ascertain what things are troubling him mentally. The treatment of these conditions has a technic just as important and just as complex as that of any physical disease.

Traumatic Neurosis

DR. J. L. SALINGER, Philadelphia: The existence of traumatic neurosis as a nosologic entity is still denied by some of the most prominent neurologists. The causative factor is trauma, but there are many predisposing conditions. The litigation which frequently ensues after accidents is a large etiologic factor. The symptomatology consists largely of mental phenomena. If proper and speedy adjustment of the patient's claims is impossible the neurosis is apt to be prolonged. Litigation hysteria and traumatic hysteria must be strictly differentiated. Following an accident only when the presence of symptoms that were not previously present are demonstrated, can a causal connection between trauma and disease be regarded as probable.

Discussion on Neurosis

DR. T. DILLER, Pittsburg: While the claims of the subjects of traumatic neurosis are still unsettled there is practically no treatment for these patients. I should hesitate to attempt an analysis of the mental troubles of patients as suggested by Dr. Mayer. I have practiced the old-fashioned psychotherapy, that of ordinary sympathy, re-education, suggestion, and that sort of thing, but I should feel that we were getting into pretty deep water to follow Dr. Mayer's plan.

DR. T. A. WILLIAMS, Washington, D. C.: The general practitioner should disabuse his mind of the idea of there being special difficulty or complexity in psychotherapy. Psychoanalysis is no more difficult or impossible than chemical analysis. However, it requires a technic of its own and a thorough knowledge of the subject. This knowledge may be acquired by any one willing to take the trouble.

DR. A. GORDON, Philadelphia: There is no rule in regard to recovery in cases of litigation following traumatic neurosis. I have had cases in which the neurosis persisted in spite of satisfactory settlement of litigation.

DR. E. E. MAYER, Pittsburg: It is the physician's duty to find the cause of the trouble, be it physical or mental. I do not doubt that Dr. Diller really practices psychotherapy, though he may not dignify it by the name.

DR. J. L. SALINGER, Pittsburg: I should regard the cases mentioned by Dr. Gordon as persisting in spite of receiving indemnity as not cases of neurosis, but of organic disease.

Treatment of Acne Vulgaris

DR. JOHN G. BURKE, Pittsburg: The usual constitutional measures against constipation, anemia and sluggish circulation must be carried out. Additional constitutional agents are the bacterins, though the results cannot be relied on to the exclusion of other remedies. Stock vaccines have been of little service, the best results having been obtained with a mixture of the acne bacilli and *Staphylococcus aureus*. A preparation containing beta naphthol, 5 per cent.; precipitated sulphur, 20 per cent.; green soap, 35 per cent., and wool fat, 35 per cent., has been of service. The *x*-ray will cure acne, but the tendency to produce atrophy of the skin with the resulting telangiectasis should make one hesitate to use it, as we may replace a curable disease with an incurable one.

Diagnosis of Hay-Fever in Children

DR. W. C. HOLLOPETER, Philadelphia: Hay-fever is essentially a disorder of early life. It is the sequel of hay-fever, annually repeated, that we find eventually seriously handicapping mature life in the form of asthma, emphysema, and cardiac and renal troubles. It is because hay-fever may be called anything rather than what it really is, especially in children, that so much uncertainty is caused in its early diagnosis. Hay-fever, like diphtheria, is a local expression of a systemic toxemia, and for its relief often calls for the making-over of the child physically as well as mentally.

Subacromial Bursitis: Etiology, Anatomy and Pathology

DR. A. R. ALLEN, Carlisle: Sepsis, traumatism and non-use are the causes of subacromial bursitis. The abnormal conditions found in these cases are thickening of the bursal walls, adhesions and adhesive bands. In some cases cheesy deposits occur.

Treatment of Subdeltoid Bursitis

DR. J. T. RUGH, Philadelphia: Inasmuch as the seat of the trouble is in close relation to the shoulder-joint, the restoration of function will be accompanied by pain. The fact that treatment will extend over a prolonged period of time must be impressed on the patient and his will power and fortitude must be developed to secure and maintain the thorough cooperation so essential to success. Many of these patients unfortunately are of the nervous, shrinking and pessimistic type, a fact which renders the labor and efforts of the surgeon doubly hard, as he must overcome their tendency to give up after a week or two of painful experience. A necessary adjunct to be constantly held out to the patient is the fact that the condition is curable, no matter what the character of the lesion in the bursa.

Discussion on Bursitis

DR. D. SILVER, Pittsburg: I find in these, as well as in post-operative cases, that it is much better to put them up to the full limit of motion once a day, then let them alone. I have not found it necessary to use a splint, but keep the arm in a sling and use manipulation. Put these patients through the whole range of motion and they come out very nicely. I think we are in error in diagnosing these cases as rheumatic instead of trying to find out what the real condition is.

DR. W. H. CAMERON, Pittsburg: I deal almost entirely with subacute and chronic cases and some patients with supposed rheumatism come to my office, and I seldom find that they have been examined.

DR. T. T. THOMAS, Philadelphia: Besides clinical observations, I have been making some studies on the cadaver in the last year in connection with these cases. I know that the bursitis theory is being rapidly and generally accepted in this country and is gaining ground abroad, still I do not believe that the cause of the trouble in these cases is in the bursa. I believe the condition is due to a periarthritis, but not to one localized to the bursa.

DR. G. G. DAVIS, Philadelphia: I believe that there is such a thing as a bursitis which is induced by disease in the same way that a person can get housemaid's knee in rheumatoid cases; also, I think that bursitis, subacromial or subdeltoid, can be due to an injury. When the joint is moved it moves to a certain extent, and then it is stopped by the ligaments. It is not stopped by the bursa. The bursæ have nothing to do with the strength of the joint.

Traumatic Lesions of the Brachial Plexus and its Component Roots

DR. C. K. MILLS, Philadelphia: Lesions of the brachial plexus and its component roots are usually of traumatic origin. The few cases not instances of traumatism being examples of a neuritis, due to infection or toxemia, and rare cases of neuromata and of hemorrhage into the plexus or its roots. The diagnostic points of most value in distinguishing this condition from hysteria are the absence of atrophy, electrical changes in the nerves and muscles, and also the retention of the deep and superficial reflexes in the hysterical case. The sensory changes, if carefully studied, have a different topog-

raphy, those of hysteria being glove-like, or assuming some other form not related to the nerve supply; those of root and plexus lesions following the peripheral or root distribution of the sensory nerves. Emotional crises may be present in the hysterical and organic cases. Surgical procedures are important in traumatic cases. Now and then much can be accomplished by dissection of the plexus from the inflammatory tissues in which it has been embedded, but usually such an operation is of little permanent result. When pain is intense and persistent, it is desirable to have a unilateral laminectomy performed and the sensory roots cut. The good accomplished in such cases is not always immediate, as memorial pain may remain for some time, but usually the result will eventually be good. Conditions in the shoulder-joint should always be carefully attended to, as the pain present may be due in part to local conditions which can be relieved by opening and treating the parts within it. Even in cases in which paralysis and atrophy are permanent, it is usually best not to resort to amputation, as often, even after this operation, painful neural responses remain.

DISCUSSION

DR. C. H. FRAZIER, Philadelphia. We have two groups of cases: those in which we do operation and find the plexus embedded in a mass of cicatricial tissue, and in which, after the removal of the cicatricial mass and careful, well-planned nerve anastomosis, the results of the operation are very unsatisfactory; and a second group in which at the operation no gross macroscopic lesion is demonstrable even though patients may have been subjected to the same character of injury. The operation of laminectomy for relief of traumatic neuritis, brachial neuralgia, the tabetic crises, and excessive pain for inoperable tumor of the cord, should be resorted to much more frequently than it is. It is not nearly so formidable an operation now as in the past.

DR. T. TURNER THOMAS, Philadelphia: The extravasation of blood around the nerve due to injury produces a condition which probably explains a good many of the so-called traumatic conditions in which the plexus itself is supposed to be injured.

DR. E. E. MAYER, Pittsburg: In my opinion, the first practical question in reference to paralysis of the brachial plexus is the question of operative procedure or not, and my opinion is practically that expressed by Dr. Frazier.

(To be continued)

MICHIGAN STATE MEDICAL SOCIETY

Forty-Fifth Annual Meeting, held at Bay City, Sept. 28-29, 1910

(Concluded from page 1587)

Stomach Disorders Requiring Surgical Intervention from the Viewpoint of an Internist

DR. C. D. AARON, Detroit: The simplest operation on the stomach is gastrostomy. It is indicated in impermeable strictures of the esophagus, for the removal of foreign bodies situated so low down in the esophagus as to make their removal from above impossible, and for the removal of foreign bodies in the stomach. In carcinomatous strictures of the esophagus or of the cardia gastrostomy is a thankless operation and should be undertaken only when the stenosed part is impassable for fluids. A simple, uncomplicated gastric ulcer does not demand surgical intervention. Only in the event of complications and of the ulcer defying thorough internal treatment, and impairing nutrition by interference with motility, should there be any question of surgical intervention. So far as surgery is available, no procedure but the removal of the ulcer by excision or gastro-enterostomy is to be considered. One of the most frequent complications of gastric ulcer is hemorrhage. The surgically most important complication of gastric ulcer is benign pyloric stenosis with subsequent dilatation of the stomach. Hypertrophic stenosis of the pylorus has been successfully operated on in very young children. In hour-glass stomach gastro-anastomosis is the procedure to be recommended. The diagnosis of this condition is now easily made by the use of bismuth with the *x*-ray.

DISCUSSION

DR. C. B. BURR, Flint: The neurotic patient is often submitted to an operation which might have been avoided, in all probability, and the operative furor is by no means confined to the surgeon. The patient has often acquired an appetite for an operation, which, if fed by the physicians, leads to bad consequences. In cases of feeble mobility, deficient innervation, or the direct consequences of depression, there is oftentimes this disposition on the part of both physician and patient to adopt surgical measures for the relief of what seems to be symptoms that demand that sort of interference.

DR. H. M. RICH, Detroit: There are two kinds of congenital pyloric stenosis in small children, one of which is a true hypertrophy, while the other is a spastic condition. It is always important that a diagnosis be made as early as possible, because in the treatment of hypertrophied stenosis an operation seems to be the only thing that will cure those patients, and it has been very successful when undertaken early.

DR. B. A. SHEPARD, Plainwell: In a case of gastric ulcer, when we figure out the condition of the patient, he is in an anemic condition, and yet without hemorrhage. Ulcer is a result in such cases more than it is a cause, and yet we often look to the ulcer as the cause of the condition. In conditions of that kind a surgical procedure will aggravate it. Instead of following surgical means we should push nutrition. We cannot always do it by feeding everything, but by a rational course of nutrition the patient can be brought up above the standard where we can supply the "antipepsin," if that is what we want to call it.

DR. WILLIAM E. BLODGETT, Detroit: In regard to the relation of posture to gastric dilatation and the retention of food, and morbid decomposition and absorption, Dr. Patterson, of Ann Arbor, reports the case of a woman physician who had had chronic arthritis for a number of years, and on whom he operated for a chronic condition which had no relation to the joint stiffness. There were no considerable adhesions of the joints, but it was a remarkable condition to find a patient who had previously been stiff-kneed, generally limber and without pain. In a few days the condition returned. A number of cases have been reported. I think we might suppose that care of the stomach may improve some joint conditions when the origin is not the tonsils, or any other definite and discoverable source.

DR. C. W. HITCHCOCK, Detroit: Frequently mental states may have an influence on the digestive functions. Unnatural attacks of depression and persistent attacks of excitement will produce in themselves the most profound alterations in the digestive functions, and these sometimes the surgeon will overlook. I have had patients complain more acutely of the digestive derangement than of the mental state, when it has been proved that it was the mental depression itself which produced the profound alterations of the digestive functions to which the patient's attention was chiefly attracted.

DR. J. E. DAVIS, Detroit: The point should be emphasized that it is in the class of functional diseases that the greatest care should be exercised in referring patients for surgical treatment. Probably 70 per cent. of stomach diseases are functional in character, and these would not be helped by surgical treatment. We should take the firm position that when we have a distinctly functional case, it should not be referred for surgical treatment.

DR. J. FLINTERMAN, Detroit: I remember the case of a man of 63 who had all the symptoms of stenosis caused by carcinoma. The stomach was dilated, but a peculiar feature was that the man had erratic chills, followed by a very high temperature, and by symptoms of mental excitement; in the attacks he became unmanageable, and could not be kept in bed, but as soon as the temperature dropped these symptoms stopped. Careful examination showed that the man was subject to endocarditis, and for some reasons an operation was declined, although the patient insisted on it. He had not had any chill for several weeks. The heart did not make

any serious trouble, and finally operation was decided on. Stenosis of the pylorus was found. Immediately after the operation the man had serious chills again, and died under acute symptoms of pulmonary edema. Necropsy showed that the patient had endocarditis. On one of the mitral valves was a distinct polypus, but the condition was not due to a malignant tumor; it was found to be of a benign nature. In this case operation was out of place, but the wishes of the patient were carried out.

The Future of Psychotherapy

DR. T. KLINGMAN, Ann Arbor: The contentions of many physicians that psychotherapy is unscientific and unworthy of the interests of a natural philosopher were until recently, perhaps, not without foundation, but since the works of Freud and Jung have placed this method of treatment on a sound scientific basis, we must regard this verdict as unjust and erroneous. We no longer limit the application to our usual consolation to our patients through which we place them in a state of credulous expectation, nor do we regard the treatment of psychoneuroses by suggestion a scientific procedure, as we know that the suggestion technic does not concern itself with the origin and significance of the morbid symptom, but suppresses it and prevents the pathogenic idea from manifestation. Suggestion increases the resistance which we must overcome before we are able to bring the malady to a favorable termination. It cannot therefore be regarded as either sound medicine or sound psychology. I have long since rejected hypnosis and find a more satisfactory means in gaining access to the subconscious through the analysis of dreams in the application of the psychoanalytic method of treatment which is the method which has placed psychotherapy on a sound scientific basis, and has opened a wide field for a new line of research.

Differential Diagnosis of Organic and Functional Diseases of the Stomach

DR. J. E. DAVIS, Detroit: The chief graphic signs should be as well known as their names. Functional signs will be most frequently used in eliminating the less important. The patient's history should be carefully obtained; data should be critically compared, and indecision should hark one back to the original history.

DISCUSSION

DR. B. A. SHEPARD, Plainwell: I think that we often find people who are afflicted with gastric disturbances of nervous origin, among those who are doing intellectual work, especially school children, and those who follow the higher intellectual pursuits.

DR. J. T. WATKINS, Detroit: Functional diseases of the stomach are being gradually lessened in number. In the last two years a great many obscure diseases of the stomach have been cleared up by the finding of gall-stones or chronic appendicitis, or perhaps a chronic cholecystitis, and in those cases it hardly seems to me that we can attribute the stomach symptoms to the nervous system.

DR. J. G. MANWARING, Flint: The statement has been made, and not approved, that the hypersecretion of hydrochloric acid is evidence of ulcer. I think with a little moderation that is true. Recurring attacks are practically due to ulcer. A malignant development of ulcer on the duodenum is a great rarity. The development of a malignant condition in ulcer of the stomach is not so rare. One can thoroughly diagnose ulcer of the duodenum, and assure the patient that the probabilities are that he will never have cancer there. We cannot so assure him if it is in front of the pylorus.

Inoculations of Bacterial Vaccines in Rheumatic Arthritis

DR. G. A. PERRSON, Mount Clemens: So far as treatment is concerned, the cases may be divided into three groups. Patients in the first received the salicylate treatment and mineral baths; those in the second received mineral baths only; those in the third received inoculations of bacterial vaccines and mineral baths. One hundred and sixty-two rheumatic patients were treated with bacterial vaccines from June 1, 1906, to Oct. 1, 1909. On March 1, 1910, the records show recurrences in 54 patients; during the same period 48 patients were treated with salicylates and mineral baths, 26 of whom had recurrences.

DISCUSSION

DR. ANDREW P. BIDDLE, Detroit: From personal experience as a patient, I desire to express my positive conviction that the vast majority of rheumatic conditions are septic in character. The majority of the patients who go to the so-called resorts are not treated in a scientific manner. Very little distinction is made in many instances between a case truly rheumatic, and one due to some other condition. I believe that most so-called rheumatic conditions are due to bacterial infection.

Symposium on Obstetric Anesthesia

DR. W. H. MORLEY, Detroit, discussed scopolamin and morphin.

DR. J. B. WHITNEY, Grand Rapids, described the technic of anesethesia in obstetrics.

DR. JOHN BELL, Detroit, spoke of anesthesia in its relation to post-partum hemorrhage.

DR. N. N. WOOD, Ann Arbor, discussed chloroform and ether, stating that chloroform is not the ideal anesthetic for obstetrical use. He pointed out its disadvantages, and said that it was not so free from danger as was commonly believed or as the text-books usually stated. The element of danger was distinctly increased when chloroform anesthesia was used for obstetric operations. Ether might be used as a routine anesthetic in obstetric work. He described the method of administration as practiced at the University Hospital Maternity, and the results obtained.

DISCUSSION

DR. R. R. SMITH, Grand Rapids: I do not think the use of morphin-scopolamin in obstetrics will ever be very popular. I have used it as an adjunct in between 400 and 500 surgical cases and am fairly well acquainted with its action. It is rather uncertain, and tends to reduce the strength of the pains, modify the natural course of the labor, and would require perhaps more constant attention on the part of the obstetrician than is often practical to give in the average case.

DR. C. E. BOYS, Kalamazoo: I desire to emphasize the point of decomposition of chloroform when used in the presence of an open light. In one instance during a high forceps operation I almost collapsed because of the accumulation of gas in the room. I have in mind also another instance in which three physicians and two nurses were in attendance on an operation, when three out of the five were overcome and had to retire to another room, thus leaving the patient in charge of only two. This constitutes one of the objections to chloroform.

DR. J. H. CARSTENS, Detroit: Having been an obstetrician myself once, and having used chloroform thousands of times in obstetrics, I must say I cannot feel that there is any particular danger in its use. I have never had any trouble with it. When operating on a pregnant woman I never hesitate to use chloroform. As to the danger of postpartum hemorrhage, I have been in the habit of giving a hypodermic injection of ergot or a good dose of it before giving the chloroform, and then when nearly finished I would stop the chloroform, so that by the time the forceps were applied and the child delivered or version performed the patient would be almost out from under the influence of the anesthetic, after which I would watch the uterus well to see that thorough contraction took place.

DR. REUBEN PETERSON, Ann Arbor: My opinion has always been similar to that expressed by Dr. Carstens. Perhaps it is imagination that has led me to believe that some peculiar reason exists whereby the obstetric patient does not run the same risk or danger in the taking of chloroform as do other patients. Still I cannot but feel that possibly our observations have been a little incomplete, and certain recent reports have shown that there is considerable danger in the administration of chloroform to the pregnant woman. In the Univer-

sity Hospital we try to teach a method that can be readily employed by the practitioner, and we have not taken up the use of scopolamin. A little nitrous-oxid gas has been used, but we have confined ourselves to the administration of ether almost entirely for the purpose of teaching the student to use one anesthetic.

DR. H. W. YATES, Detroit: With Dr. Carstens and others we must agree that in the case of a normal patient, one who needs the anesthetic for but a short time, chloroform is the easiest means of anesthesia and fairly safe.

DR. JAMES P. LETTS, Romeo: Chloroform should not be indiscriminately used in obstetrics. As country physicians we find times when it is impossible to use anything except chloroform because we are alone, and the only help we have is that of a servant or neighbor. Under these circumstances I have found that chloroform is about the only anesthetic we have.

DR. E. T. ABRAMS, Dollar Bay: In my own practice I do not believe I have ever used ether in an obstetric case. The great danger from the use of chloroform comes from its indiscriminate and careless use. There is no question but that anesthesia is a predisposing factor to post-partum hemorhage in any case and in all cases.

DR. STEVENS, Detroit: I have never seen any danger from the use of chloroform in obstetrics.

DR. H. W. LONGYEAR, Detroit: I have never been afraid to give chloroform in obstetric cases. In surgical work I rarely use it—never unless anesthesia by gas and ether is contraindicated.

DR. B. R. SCHENCK, Detroit: In a normal case, I believe chloroform is the proper anesthetic to use, providing one can give it at the beginning of pains and take it away so that it is not continuous. If one has an operative case in which the patient must be completely under the influence of the anesthetic and relaxed, I think ether should be employed. In giving a mixed anesthetic, such as morphin and scopolamin, the danger is that before the advent of anesthesia the patient does not show the line of resistance she would show previous to the administration of ether. A skilled anesthetist is necesssary.

DR. B. A. SHEPARD, Plainwell: In pregnancy, the kidney is doing an unusual amount of functionating which tends to raise the blood pressure, and labor also tends to raise blood pressure. Ether, if it has any effect, also tends to raise blood pressure. Hence we have in the administration of ether in these cases an agent which will make a bad matter worse, in that we are liable to have excessively high blood pressure at the time of labor. Chloroform, on the other hand, is a drug which lowers blood pressure, and by giving it in labor we offset that tendency.

Pelvic Infections, Based on the Study of One Hundred Consecutive Operations

DR. B. R. SCHENCK, Detroit: I criticize the method employed by most text-book writers in considering this subject, in that so much stress is laid on the different pathologic lesions that the student loses sight of the subject in its broader aspects, and the physician attempts to diagnosticate and treat a particular lesion rather than attempt to aid Nature to take care of an infection. The subject is the most important one in gynecology, because the commonest, and the most difficult because of the low average of the patients requires the utmost conservation of organs. The average age of my patients, 100 in number, was 29; 40 patients were under 25 years. The proportion of lesions in the 100 cases was: adherent appendages in 31; pyosalpinx and ovarian abscess, 36; pelvic abscess, 14; salpingitis, 8; hydrosalpinx, 5; pelvic peritonitis with localized effusion, 6, and associated appendicitis in 12 cases. It is more important to recognize the type of the infection than the exact pathologic condition. Of gonorrheal infection there were 43 cases; of puerperal infection 21, and of tuberculosis, 14. Tuberculosis is more frequent than is generally supposed. Many cases are missed unless the specimen is examined microscopically. There are no hard and fast rules of treatment. In general, except for the evacuation of abscesses vaginally, gonorrheal infection should be treated without operation. When chronic, with acute exacerbations, hysterectomy should be done, although conservative work is often justifiable. Streptococcus infection should be treated by the opsonic method. Great caution is required in doing abdominal operations, even in chronic cases. In one of my patients culture showed streptococci two years after infection. From 60 to 70 per cent. of the cases of peritoneal tuberculosis in women show primary foci in the tubes. A radical operation should be done. The operations done in these 100 cases were: hysterectomy, 37; conservative abdominal operation, 41; vaginal puncture, 17; incision and drainage above Poupart's ligament, 5. There were two deaths, both cases being instances of streptococcus infection.

Value of Vaginal Incision in Acute Pelvic Infections

DR. REUBEN PETERSON, Ann Arbor: It is inadvisable to operate from above in acute pelvic infections because, first, such septic patients do not stand prolonged abdominal operations well; second, contamination of the peritoneal cavity by the contents of pus tubes will result in death from peritonitis in a certain percentage of cases on account of mixed infection being present. A better plan is to open through the vagina and establish good drainage. Later, when pulse and temperature are normal, if the patient still has pelvic symptoms, a laparotomy can be safely performed, and all or part of the internal genitalia removed.

Discussion on Pelvic Infections

DR. J. H. CARSTENS, Detroit: We recognize two distinct pathologic conditions in the pelvis: the one is infection of the uterus going up into the tubes, producing an inflammation of the pelvic peritoneum with pus in the tubes, surrounding the tubes, and in the adhesions. Another kind of pelvic inflammation involves the pelvic cellular tissue, and has nothing whatever to do with the peritoneum except that the inflammation extends from within the loose cellular tissue to the peritoneum, when we have there a kind of peritonitis which will cause adhesions. When we open up an abdomen like that we find that the tubes are intact, the pelvis is free from pus, there is nothing the matter with the uterus and tubes, but the infection has traveled by the lymph channels through a tear in the uterus or the vagina and has involved the lymphatics and the cellular tissue of the pelvis. These conditions are generally of puerperal origin. In these cases the pelvis should be opened and drained. We can operate in the chronic cases by abdominal section, but in the acute cases drainage should be instituted.

DR. T. A. MCGRAW, Detroit: The extension of gonorrhea into the tubes may be prevented by vigorous and correct treatment of the acute condition. Acute pelvic infections in many cases follow urethritis or acute gonorrheal infection of the gland of Bartholin or its duct. Those patients do not come to us in the primary stage. In a great many cases the physician himself unwittingly and carelessly assists in the extension of the infection from the gland of Bartholin, or from the lower urinary tract to the tubes by unwarranted manipulations. If physicians would understand that the cervix or vagina is not affected, but simply the lower part of the generative tract, and keep out of the upper part, I think that in a great many cases extension might be prevented. There are generally two or three abscesses present; therefore, when we open up that is not enough, for we can find that there are other abscesses by good bimanual examination, palpating with one finger in the opening and the other in the abdomen. A drainage tube is better than gauze. I always use it and never have trouble. We must not use too stiff a tube because it might ulcerate the bowel.

DR. R. R. SMITH, Grand Rapids: In treatment of tubal infections, a great many different factors must be considered, and among them the duration, the nature, and the extent of the lesion. The younger the woman the more reason there is for conservatism; and the older the woman the more reason for radicalism. There are no minor arguments. We must consider all factors and resort to a variety of procedures in handling of these cases.

DR. H. W. YATES, Detroit: In the acute stages of gonorrheal infection operation should almost always be deferred.

If it is necessary to do anything at this time it should be simply drainage. Cases of acute puerperal origin are of a different type. The late Dr. Pryor called attention to the good results which he obtained from making a wide opening in the posterior cul-de-sac and the free use of gauze. To him we owe much in the treatment of acute cases of puerperal fever.

DR. F. W. ROBBINS, Detroit: In the treatment of conditions of the uterus we should ask ourselves: What would I advise if this patient were my mother or sister?

DR. L. W. TOLES, Lansing: In spite of the best drainage, many of these patients will need care in the future, and they should be warned of that possibility and told that they may avail themselves of the chance of a permanent cure in the future.

DR. A. S. WHEELOCK, Goodrich: In many cases that seem just as severe as any that we have drained and thought necessary to drain, operation being refused, the destruction has proved not so serious as we had believed it to be. Many of these patients have gone on to perfect recovery and subsequent pregnancy, and in after years absolutely no trace of former trouble could be found.

DR. R. J. HUTCHINSON, Grand Rapids: Every surgeon seems to have trouble with the openings closing before the diseased tissues in the pelvis have become repaired. The transverse incision is the correct one to make, but in making that incision and taking measures to prevent its closing we must bear in mind that the healthy vaginal mucous membrane and tissues immediately underneath it are the ones that close over and keep in the septic material. By making a T-shaped incision, getting the finger in the cavity and making one incision at right angles to the other, we prevent the two edges coming together. It is almost impossible for the center of that incision to heal before drainage is established.

Immediate vs. Deferred Operation for Hemorrhage Due to Tubal Pregnancy

DR. H. H. HEWITT, Detroit: In about 95 per cent. of cases there is little difference whether the operation is immediate or deferred. In the remaining 5 per cent., or in patients in profound shock from hemorrhage, there is opportunity for argument as to the time for operation.

DISCUSSION

DR. R. R. SMITH, Grand Rapids: The question really restricts itself to the patients who present marked shock at the time they are seen. All other cases are acknowledged to be operable surgical cases, and should be so treated.

DR. J. BELL, Detroit: It must not be forgotten that in waiting, or not operating, which some men advocate, there is always the possibility of pus being in the pelvis, a lot of blood is poured out there, and there is liable to be sepsis which will develop into abscesses or possibly peritonitis. I favor operating always and never trusting to Nature to repair the condition.

Local Anesthesia for Radical Cure of Inguinal and Femoral Herniæ

DR. J. A. MACMILLAN, Detroit: The surgical anatomy of these regions favors the successful employment of local anesthesia. Nerve blocking is not applicable in operation for femoral hernia. There are advantages in local over general anesthesia for these operations; but modifications of the operative technic are required.

DISCUSSION

DR. J. REYCROFT, Petoskey: People are afraid and unwilling to be operated on under a local anesthetic, and physicians would be unwilling to operate if they were compelled to do so under local anesthesia.

DR. L. J. HIRSCHMAN, Detroit: It is much easier for the surgeon to put a patient under a general anesthetic, but it is not easier for the patient. Many patients have been operated on for so-called trivial troubles under local anesthesia where we would often have deaths from postoperative procedures. There has been a demand for local anesthesia so that we can still further reduce the mortality of surgical operations.

DR. W. H. BELKNAP, Greenville: I think that in certain cases local anesthesia has a decided advantage. A woman of 34 on whom I operated for a strangulated hernia was not in condition to take a general anesthetic. I used a 0.5 per cent. solution of adrenalin by skin infiltration, did a radical operation, and she had practically no pain. Anesthesia was complete, and healing was perfect.

The Radiograph as an Aid in Diagnosis of Suppurations in the Mastoid and Accessory Sinuses

DR. E. J. BERNSTEIN, Kalamazoo: The careful clinician is being convinced that many hitherto obscure ailments owe their origin to diseases of the accessory sinuses of the nose, and that often serious trouble may exist there without demonstrable pus in the nose. The radiograph gives a graphic picture not only of the presence or absence of pus, but also of the kind, whether diploic, cellular or pneumatic, and the size of the mastoid. This enables the surgeon to avoid wounding structures.

DISCUSSION

DR. A. W. CRANE, Kalamazoo: It is only by the skiagraphy of the great number of cases, and many of them not in acute stages, that such a diagnosis or anything like a working knowledge of plates can be obtained.

MEDICAL ASSOCIATION OF THE SOUTHWEST

Fifth Annual Meeting, held at Wichita, Kan., Oct. 11-12, 1910

(Concluded from page 1588)

Officers Elected

The following officers were elected: president, Dr. Middleton L. Perry, Parsons, Kan.; vice-presidents, Drs. J. M. Griffin, Sulphur Springs, Kan., William H. Stauffer, St. Louis, and Wilmer L. Allison, Fort Worth, Texas; and secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla. (reelected).

Resolutions were adopted condemning the use of antiseptics in the preservation of food products, and favoring the establishment of a national department of public health.

The next meeting is to be held in Oklahoma City.

Treatment of Patients Desperately Ill in Consequence of Accident

DR. CHARLES E. BOWERS, Wichita, Kan.: Many of these patients seem to be beyond hope; others recover notwithstanding shock, hemorrhage, or infection, which may be present. In such cases it becomes necessary to do what we can to save lives that are thus jeopardized, and prompt and efficient intervention is demanded. In treating shock the first therapeutic agent indicated is something that will raise the body temperature, and the best heat is dry or moist. Perhaps a hot bath will do most. The second thing to do is to lower the head in order to improve the circulation of the brain, which has much to do with shock; with better brain circulation the patient will soon recover from shock. The third thing to do is to re-establish the normal specific gravity of the blood, and that can be done by saline solutions subcutaneously or by the rectum, or by the transfusion of blood.

DISCUSSION

DR. HOWARD HILL, Kansas City, Mo.: The various manifestations of lowered blood-pressure, such as anemia, can best be met by the use of normal saline solution; the application of heat externally, and the internal administration of salines constitute practically all that has to be done. Morphin is beneficial in many cases of shock. It cuts off the afferent impulses.

DR. JOHN PUNTON, Kansas City, Mo.; From whatever the shock may come, to whatever the injury may be due, the prognosis is always as important as the treatment itself. Shock spends its force on the vital organs, hence we have a disturb-

ance of the pulse, the temperature and respiration. I have found that shock is attended with more or less loss of consciousness, and the question of prognosis in the presence of loss of consciousness is often a very perplexing one to the surgeon as well as to the internist. There is no surgical rule that enables the surgeon to tell positively whether the prognosis is favorable or not, but I have found that a good rule to adopt in such cases is not to lengthen the time the loss of consciousness is present. The generally accepted view is that the longer the duration of the loss of consciousness the less chance there is for recovery. As a general rule that is true, but it is subject to so many exceptions that it is worth while for us to remember that in the presence of shock, and in the presence of loss of consciousness due thereto, the respiratory center plays a more important rôle in the prognosis than does the temperature or the increased pulse when there is a question as to prognosis; therefore, it is wise to remember that the increased respiration is a very much more unfavorable sign than either the raised temperature or the accelerated pulse, and if the surgeons will adopt that rule, they will give a favorable prognosis when they might otherwise be led in the loss of consciousness to give an unfavorable one.

DR. GEORGE A. BOYLE, Enid, Okla.: I think the personal element enters into every case of shock. There are individual characteristics. Phlegmatic persons will stand more injury with greater shock and recover than others who are highly organized, nervous individuals. After twenty-five years' experience I am unable to determine just what the prognosis in a given case of shock is going to be.

DR. D. A. MYERS, Lawton, Okla.: In cases of infection in which the pulse and temperature are divergent, by giving a bad prognosis one will be on the safe side. But as soon as the pulse and temperature begin to harmonize, it is safe to encourage the patient. The outlook is more favorable.

Postoperative Thrombosis

DR. ST. CLOUD COOPER, Fort Smith, Ark., read a paper in which he reported a case of postoperative thrombosis complicated with neuritis.

DISCUSSION

DR. J. D. GRIFFITH, Kansas City, Mo.: I have encountered postoperative thrombosis of the lower extremities in six cases. Two such cases I have had within the last two or three weeks, and in five of these cases the thrombosis has occurred on the left side, and one on the right side.

DR. EDWARD H. OCHSNER, Chicago: So far as I know, no one has been able to throw any light on the cause or causes of postoperative thrombosis, or why it occurs more frequently on the left than on the right side. Thrombosis occurs after simple cases of appendectomy, and it takes place in a larger percentage of cases on the left side than on the right after operations for appendicitis.

DR. J. E. GILCHRIST, Greenville, Tex.: We know very little about the cause or causes of postoperative thrombosis. It not only occurs following simple surgical operations, but sometimes follows fevers and other conditions. I have seen severe thrombosis following typhoid; the patient's limb would be greatly swollen and blistered, the condition being attended with great pain and all the symptoms of surgical thrombosis. The treatment outlined by Dr. Cooper is rational, and in the cases I have had I have employed the same method of treatment.

DR. CHARLES H. CARGILE, Bentonville, Ark.: I recall a case of thrombosis following exploration of the region of the kidney for obstinate pain. The pain was relieved by operation. In this case the thrombosis occurred on the left side.

DR. HOWARD HILL, Kansas City, Mo.: Several years ago, Franklin P. Mall of Johns Hopkins Hospital conducted an investigation on cadavers, in which, in a number of cases, he found a constriction ring in the common iliac vein before it joins with its fellow of the opposite side. This constriction ring leads to slowing of the current in the vein in the region below. If these observations could be confirmed by some other anatomist, it would be a clue to the reason why thrombosis occurs on the left side. I do not know the reason

DR. ST. C. COOPER, Fort Smith, Ark.: I do not think the blisters I spoke of were caused by poor circulation; they were probably due to some trophic disturbance such as we have in Raynaud's disease.

President's Address: Fatigue

DR. G. H. MOODY, San Antonio, Tex.: Fatigue is relative in degree and follows prolonged and excessive activity. The degree of fatigue which may follow a given amount of activity or strain will depend on the nervous integrity and the healthfulness of the individual. Also, the amount of fatigue which an individual may be able to overcome promptly by rest and sleep is likewise dependent on the recuperative capacity of the individual, and on his opportunity and inclination for adequate rest and recuperation. The more normal and robust the individual, the more easily, naturally and irresistibly will sleep and rest follow and continue until the fatigue is fully overcome. On the other hand, the more delicate or neuropathic the individual, either from bad heredity, disease, or prolonged strain, or other cause, the less will be the capacity for rest and pleasurable repose, and the fatigue of each day's activities may not be fully restored from day to day, and there will result, finally, a chronic irritability and restlessness which renders impossible adequate recuperation voluntarily. This tends to produce a condition simulating brilliancy, in which greater efforts are encouraged in the young, until there ensues an acute breakdown or chronic exhaustion. The forms in which these results of prolonged fatigue and exhaustion generally appear are indigestion, malnutrition, the various fatigue neuroses, known as the occupation neuroses, insomnia, neurasthenia, psychasthenia, hysteria, the acute insanities, in which the strain of the climacteric plays a part, and dementia and paranoia, which are generally misfortunes of the developmental period of life. There also occur drug and alcohol addictions, the majority of which are developed as the result of a conscientious effort to bear the burdens of life by means of stimulating, anesthetizing, or narcotizing overfatigued feelings, in order to make life bearable for awhile, with the hope that a change in conditions may perchance finally come.

Locomotor ataxia and pareses may occur when continued strain and fatigue play an important part together, generally with a syphilitic diathesis and a neuropathic constitution. In fact, while the best authorities maintain that there is a specific constitutional basis in these cases, they seem never to develop without the long-continued fatigue and the neuropathic constitution in which adequate rest is difficult through life. Formerly, patients with tabes or paresis degenerated rapidly, and dementia and death came early. In the light of recent investigations, it is found that the decline could be brought to a standstill in most of these cases, and that the tabetics, especially, should be able to have a comfortable and fairly useful life, not shortened materially by reason of the disease, and that the paretics should become able to live at home comfortably for many years, their degree of comfort depending on the time and the course of the disease when the diagnosis is made and proper treatment instituted. It is hoped that in these parasyphilitic conditions the "606" of Ehrlich will prove of great value. Much is being done by proper administration of mercury and arsenic preparations, preferably hypodermically in both instances, the arsenical preparation found efficacious being sodium cacodylate. These patients should not be given the iodids. They degenerate the patient rapidly and do no good. From whatever standpoint these cases are considered, the important elements of fatigue must be kept always in mind.

In such purely physical disorders as gastro-enteroptosis, and other conditions of similar origin, we more readily take into account the general condition of fatigue and the diminished general muscular tonicity of the patient, and reckon with it in whatever other medical or surgical procedure thought to be indicated.

It is to be hoped that in time there will be a universal attempt on the part of the public to make a scientific estimate of the individual capacities and limitations of each child. With this estimate correctly made or even approximately so,

individuals will pass through the educational and developmental stages of life into maturity without so much uncertainty concerning their future.

Oration on Surgery: The Prevention and Treatment of Septic Infections of the Extremities

DR. EDWARD H. OCHSNER, Chicago: The severer wounds that naturally come to the physician from the very first we must divide into two classes: the more superficial wounds, that are likely to be infected with ordinary pyogenic microorganisms only, and those which are likely to be infected with the tetanus bacillus in addition. In the latter the same method of disinfection is used as in the former, but in addition I always give a prophylactic dose of antitetanus serum, and, if the wound is deep or likely to contain foreign material, I lay it wide open, remove the foreign material and leave the wound gaping and to heal by granulation subsequently. All fresh wounds are treated in the following manner when they first come in: If the laceration is extensive, the patient is given a general anesthetic; if less severe, the extremity is immersed in a 2 per cent. phenol solution in tepid water for from 5 to 10 minutes. This is an excellent local anesthetic, and makes it possible to scrub the parts without causing undue pain. The extremity is cleansed thoroughly with soap and sterile water by the aid of a brush or pieces of sterile gauze; then washed off with ether, scrubbed well with turpentine, swabbed with tincture of iodin, rinsed with alcohol, and finally a sterile dressing is put on. If in spite of these precautions, or because of their neglect, septic infection does develop, by instituting and rigidly adhering to a definite rational plan of treatment we can secure healing with practically no mortality, rarely, if ever, lose a member, and usually without permanent impairment of function. A patient with septic infection with pyrexia, be it ever so slight, should be kept in bed with the extremity elevated in a comfortable relaxed position. This last point is of considerable importance. If the muscles are not relaxed they make pressure on the lymphatics and veins and hinder return circulation, and the tenseness of the muscles tires the patient unnecessarily and reduces his resistance. The two factors which lower resistance almost more than any other two are pain and fatigue, and by observing the rules here laid down these can be reduced to the minimum. By the proper combination and judicious application of phenol, boric acid, alcohol, and tincture of iodin, one can practically always destroy the bacteria or decrease their virulence. Ninety-five per cent. phenol is a powerful germicide, and can be safely applied with a cotton swab over the reddened, inflamed area, until it turns white; the phenol is then quickly washed off with strong alcohol. Inflamed skin will tolerate an amount of 95 per cent. phenol that would destroy normal healthy skin. After this preliminary application, the extremity is encased in a large hygroscopic elastic wet dressing. For wet dressing I use a saturated solution of boric acid in water, to which from 1/6 to 1/2 of 95 per cent. alcohol is added. Saturated solution of boric acid is, in my opinion, the best non-toxic antiseptic we have, and alcohol is a powerful dehydrant, and in addition keeps the part warm and comfortable, preventing that cold, clammy feeling which a wet dressing is so apt to cause. In the majority of cases, the veins and lymphatics can be drained by simply elevating the affected extremity, and this can be done so effectually that incision rarely becomes necessary. This drainage by elevation is assisted by the dehydrating power of the alcohol.

In conclusion, permit me briefly to recapitulate: Insist on absolute rest and proper elevation of the affected extremity, with the patient recumbent in bed if there is the slightest pyrexia. Do not incise until there is unmistakable evidence of pus, and do not remove the lymph glands unless they are necrotic and suppurating. If incision becomes necessary, it should be within the line of demarcation and, if possible, distal to it and to an Esmarch constrictor. The incision should be swabbed with tincture of iodin, the constrictor being released so as to close the cut veins and lymphatics. The inflamed part should be manipulated, kneaded and squeezed as little as possible. General hygiene and elimination must be attended to. If very red and inflamed, the skin may be painted with 95 per cent. phenol until it turns white, when it is washed off with strong alcohol, and a copious wet dressing applied, consisting of from one to five parts of saturated solution of boric acid and one part of 96 per cent. alcohol.

If these directions are carefully followed, healing can be secured in a relatively short time, with almost no morbidity and practically no mortality.

Colitis

DR. W. H. STAUFFER, St. Louis: Errors of digestion as a cause of colitis have been much exaggerated, though as causes of gastritis and enteritis they easily take first rank. In most cases of colitis the important factors are how, when and where we eat rather than what we eat. Syphilis, tuberculosis and impairment of the nervous system are responsible for at least 50 per cent. of all the cases that have come under my observation. Most children, and not a few adults, respond to the call of Nature only when compelled to do so, with the inevitable result that what in health is a not unpleasant duty is soon transformed into a painful pathologic process. The most valuable diagnostic aid is the proper use of the sigmoidoscope, an instrument which has not been sufficiently used by the general practitioner. Dr. Hanes of Louisville has suggested the inverted position in examining and treating patients with colitis. The treatment of colitis until recently has been very unsatisfactory. Tuberculous ulceration may be primary and entirely local, and as such will respond to local antiseptics and nourishing food. So-called membranous colitis is generally organized retained mucus, and may be treated effectively by rest and drainage. When possible, direct application to the diseased part should be made through the sigmoidoscope, or a Wald's bougie placed in position under direct observation. Jacobi, Tuttle and Soper have demonstrated the impossibility of passing a rectal tube into the colon unless there is some abnormality of the sigmoid. The medication depends on the pathology, and every indication must be met as it arises. Ichthyol and argyrol in various percentages are of signal service. Oil of eucalyptus or thyme in olive oil has given me excellent results. Appendicostomy or cecostomy should always be employed in amebic dysentery. Experience has shown that there should be no haste in closing the fistulas.

DISCUSSION

DR. L. P. WARREN, Wichita, Kan.: It is the consensus of opinion among expert proctologists that it is practically impossible to pass a tube into the descending colon. The sigmoid itself and rectum may be inspected, but it is not possible to pass the proctoscope far enough to see into the descending colon.

DR. S. N. MAYBERRY, Enid, Okla.: The general practitioner is not always able to interpret correctly what he sees. What is the clinical appearance of early tuberculosis of the anus before the patient complains of any symptoms to speak of? After introducing the sigmoidoscope, I am unable to tell in some cases whether there is a tuberculous condition or not. I have had two cases of rectal disease in which I could not make a satisfactory diagnosis.

DR. W. H. STAUFFER, St. Louis: It is not possible to pass a tube in all cases into the colon, but it can be done in 50 per cent. It takes great care and a great deal of cooperation on part of the patient. It cannot always be done the first time, any more than the practitioner can pass a stomach tube the first time he tries to do so.

As to the clinical appearance of disease about the anus, the best comparison we can make of ulceration or of the various pathologic conditions in this region is that they resemble conditions of the throat. In 50 per cent. of the cases, if one should find a syphilitic ulcer in the rectum, he could probably find a similar condition in the patient's throat. Edges and everything would compare with the one seen in the rectum.

Pyloric Obstruction Due to Extrinsic Causes

DR. G. A. BEEDLE, Kansas City, Mo.: One patient, very fat, and slightly jaundiced, with temperature of 102 F., complained of cutting pains throughout the right hypochondrium and

epigastrium extending through to the back or right side, opposite the lower thoracic vertebra. The tongue was coated, and there were nausea and vomiting. The stomach was distended. No peristaltic wave could be elicited by massage. Extension upward and backward of the left arm caused an increase of pain, and tenderness was diffused over the epigastrium. A diagnosis of gall-stones complicated with adhesions involving the stomach was made, and operation advised. Incision revealed a mass at the site of the gall-bladder which proved to be a reflected portion of omentum containing a hard caseous mass of tubercular deposit, wedged down on the gall-bladder, and adherent in every direction. Careful exsection revealed the pyloric half of the stomach drawn down and firmly anchored. There was a slight amount of fluid in the cavity, and a few scattered tubercles could be felt on the peritoneum. The gall-bladder, although slightly dilated and full, appeared normal and was not opened. This patient recovered with complete freedom from the previous symptoms, and was in good health six months after operation. In this case, had a stomach analysis been made, the findings no doubt would have strongly indicated obstruction with dilatation and motor insufficiency, but decision as to the actual cause could be made positive only through incision.

Diagnosis and Treatment of Psoriasis

DR. W. FRICK, Kansas City, Mo.: There are no specifics in the treatment of this disease. Patients must be studied as well as the disease, and cannot all be treated successfully in the same manner or with the same drug. Many patients with psoriasis appear to be perfectly healthy in every other way. In these cases we will find sometimes deficient elimination, imperfect assimilation, or some other imperfection in metabolic processes of which the patients are not aware. When these defects are discovered and corrected the patients are treated with better results. Of recent years it is remarkable to see the rapid improvement under a few treatments with the *x*-ray. This improvement is not permanent, however, and must necessarily be supplemented by other methods of treatment. External treatment is resorted to in nearly all cases, and relief is obtained more quickly by this means than by internal treatment. Various drugs are used in treating this disease; the essential thing to do for patients is to cure the existing disease and teach them how to avoid the causes, if possible, or how to check a beginning attack.

Other Papers Read

The following papers were also read: "Germophobia," by Dr. A. K. West, Oklahoma City; "Appendicitis Obliterans; a Clinical and Pathologic Study," by Dr. H. Reed, Oklahoma City; "Cardiac Murmurs and Their Clinical Significance," by Dr. L. J. Moorman, Oklahoma City; "Pathology of Insanity," by Dr. G. W. Robinson, Kansas City, Mo.; "Methods and Material the Secret of Success on Local Anesthesia," by Dr. A. E. Hertzler, Kansas City, Mo.; "Gastric Roentgenology," by Dr. E. H. Skinner, Kansas City, Mo.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

October 22

1 The Discard Heap—Neurasthenia. G. M. Parker, New York.
2 *Bacteriologic Studies in Cases of General Paresis. R. C. Rosenberger and S. Stern, Philadelphia.
3 Atypical General Paralysis of the Insane. B. Glueck, Washington, D. C.
4 *Paratyphoid Fever. G. P. Paul, Round Lake, N. Y.
5 Digitalis Fuchsii (Foxglove V. Foxes-Glew); "Opium of the Heart;" "*Quinquina du Cœur.*" J. Knott, Dublin, Ireland.
6 *Hexamethylenamin in Treatment of a Case of Meningococcus Meningitis. W. Brem, Cristobal, Canal Zone.
7 What is a Rational Diet? M. Lyon, Kansas City, Mo.
8 Waters of Bad-Nauheim and Their Therapeutic Effect. H. Engel, Bad-Nauheim, Germany.
9 *Easy Method of Determining the Dose for Infants Below One Year. H. Fried, New York.

2. **General Paresis.**—The bacteriologic studies on which this preliminary report is based were carried out in twenty-nine cases, which included general paresis of the insane, and other forms of insanity as controls, in which the authors secured a growth of their organism in nine. The description of the organism isolated is as follows: A short bacillus, from 2 to 3 microns in length, from 0.3 to 0.5 microns in thickness, arranged singly and in pairs (end to end) and in groups; sporiferous; Gram positive; actively motile. Bouillon: turbid; no pellicle. Gelatin stab: growth follows the puncture, whitish in color; and no liquefaction of medium; no gas production. Agar slant: growth moist, grayish white, filmlike, abundant in from 48 to 72 hours. Potato: no visible growth up to 10 days. Litmus milk: turned acid in 3 days, followed by coagulation in from 5 to 7 days. Blood serum: filmlike, and whitish in color; no liquefaction. Microscopic agglutination tests, using 1 to 20 and 1 to 40 dilution, were positive in general paresis and negative in a few controls, using blood for the latter tests from apparently normal individuals and from cases of dementia præcox. As to identification of this organism, comparative studies fail to show any organism that has the same cultural peculiarities.

4. **Paratyphoid Fever.**—This paper is based on six cases of paratyphoid fever occurring in the author's practice. Five of these occurred within a week, and apprehension as to an impending epidemic was excited, but no more developed. The mode of transmission was never discovered, neither was the focus of origin located. Some of the patients used ice, others did not; the homes were widely separated; the milk supply was not common; the drinking water was found to be free from all contamination; and the failure of further development of the disease excluded the water as the source of disease. It is Paul's opinion that many cases of this disease are diagnosticated and treated as typhoid.

6. **Hexamethylenamin in Meningitis.**—In this case, clearly one of meningococcus meningitis, hexamethylenamin was prescribed, 10 grains on the evening of November 18, and 15 grains four times daily afterward. Two days later the test for hexamethylenamin in the cerebrospinal fluid was positive. The cells in the fluid were diminished from 18,360 before hexamethylenamin was administered to 3,030 to each c.mm.; meningococci were present in smears and cultures before, absent after. November 29, there having been no disturbance from hexamethylenamin, it was increased to 20 grains, four times daily (80 grains daily). The patient's condition was growing worse, and he died December 8.

Necropsy: Purulent cerebrospinal meningitis with Gram-negative intracellular and extracellular diplococci in the exudate; purulent sphenoid sinusitis and purulent otitis media of the right ear with Gram-negative diplococci; catarrhal inflammation of the left ear and antrum; early bronchopneumonia; calcified tubercles in lung; fibrous pleuritis.

The apparent effect of the drug on the organisms of the spinal fluid, the comparatively long duration of an apparently very acute infection treated with hexamethylenamin, together with its demonstrated presence in the spinal fluid in strengths of from 1 in 50,000 to 1 in 200,000, Brem believes, indicate that the drug might be useful as an adjunct in the treatment of meningitis cases or as a substitute for Flexner's serum in meningococcus meningitis should the serum not be obtainable.

9. **Doses for Infants.**—Fried's formula is as follows: "Make the age in months numerator, and 150 denominator of the fraction." Thus, for a baby 2 months old, 2/150; 3 months, 3/150; 4 months, 4/150, etc. This simplifies the computation. The resultant fraction will be very near or the same as when arrived at by Young's rule. For those who for some reason or other would prefer to retain the classic rule of Young, Fried has somewhat modified or rather added to the rule, which will facilitate considerably the computation of doses for children below one year. Young's rule as modified now reads as follows: For children below 12 years and above 1 year, add 12 to the age and divide the age by the number

thus obtained. For infants below 1 year, add 144 to the year in months and divide the age in months by the number thus obtained: Thus, for a baby 8 months old, $\frac{8}{8+144} = \frac{8}{152}$ of adult dose; for a baby 1 month old, $\frac{1}{1+144} = \frac{1}{145}$ of adult dose.

Medical Record, New York

October 22

10 Post-Prostatic Cystotomy. E. Fuller, New York.
11 Manic-Depressive Insanity and Dementia Præcox. C. G. Wagner, Binghamton, N. Y.
12 Postscarlatinal Anuria for Five Days in a Boy Three and a Half Years Old; Recovery. W. P. Northrup, New York.
13 History of Forensic Medicine from the Renaissance to the XIX Century. C. G. Cumston, Boston.
14 Hospital Treatment of Nervous Diseases. P. Bailey, New York.
15 Constipation and Toxemia. J. G. Sauer, New York.
16 Abscess in the Frontal Lobe of the Brain After Chronic Frontal Sinusitis; Erysipelas in Conjunction with Acute Mastoiditis. A. Wiener, New York.
17 The Lodge Practice Evil of the Lower East Side. M. J. Clurman, New York.
18 The King's Evil. H. Greeley, Brooklyn.
19 Tetanus Successfully Treated with Magnesium Sulphate. C. D. Fox, Philadelphia.
20 Guide for the Lateral Sinus Line. E. Amberg, Detroit.

Boston Medical and Surgical Journal

October 20

21 Technic of Arthrotomy. C. F. Painter and A. P. Cornwall, Boston.
22 The Small Fibrous Prostate. A. L. Chute, Boston.
23 *Analysis of Wound Infection in 1,000 Consecutive Clean Operative Cases. W. P. Graves, Boston.
24 Comparative Histology of the Femoral Bones. J. S. Foote, Omaha, Neb.
25 Theory and Practice of Medicine. Gastric and Duodenal Ulcer. F. W. Palfrey, Boston.

23. **Analysis of Wound Infection.**—The series of 1,000 cases reported on by Graves comprises 574 laparotomies, of which 235 were combined with plastic vaginal operations; 376 uncombined plastic operations, 55 breast operations and 11 miscellaneous. In the list of laparotomies are included inguinal hernias and operations on kidneys. Cases of chronic pelvic inflammatory disease are included as clean cases if the patients were not running a high temperature at the time of the operation. Some of these having sterile pus in the pelvis were temporarily drained through the vagina. Radical operations for cancer of the cervix uteri are also included as clean cases, although operation was done in the presence of an ulcerated surface. Complete lacerations of the perineum are also regarded as clean cases, although the field of operation is exposed to the mucous membrane of the rectum. Out of the 1,000 operative cases, 51 patients had some form of wound infection which in all but one case was of a mild form, the organism being a staphylococcus in all instances. Twenty-eight of these infected cases were laparotomy wounds in which the infection consisted mostly (19 cases) of slight sepsis of a buried catgut knot, the wound closing immediately after extraction of the knot. The other 9 laparotomy wounds were septic to a greater or less extent throughout the wound. Of these 9 cases of general sepsis in the laparotomy wound, 7 occurred in extensive abdominal hernia wounds and 2 occurred in inguinal hernia wounds. In other words, all the cases of general sepsis in the list of laparotomies occurred in hernia wounds. Nine of the breast wounds were more or less septic, the sepsis of 2 of them, however, being confined to a small area where the angle of a too tightly drawn plastic flap necrosed. Ten of the perineum wounds had stitch abscesses, though none was completely septic. Three of these cases were operations for complete lacerations; 4 were cases of very large thin-walled rectoceles. Of the trachelorrhaphies, one wound failed to unite; of the anterior colporrhaphies, one went septic; of the miscellaneous cases, a plastic on the urethra and an operation on the cervix for anteflexion failed to unite by first intention. The total mortality from all causes in the 1,000 cases was 3. One patient died from shock following a radical operation for cancer of the cervix. The second patient with a pre-existing heart lesion died of cerebral embolism following an operation for chronic appendicitis. The third patient was operated on for an enormous postoperative ventral hernia. The lower end of the wound became septic. Five weeks after the operation and after the wound had healed, the patient died of sudden acute endocarditis, which was probably in some way the result of the wound sepsis. This case is, therefore, recorded as one of death from sepsis.

Lancet-Clinic, Cincinnati

October 15

26 The Case of Mary Baker G. Eddy. R. W. Reed, Cincinnati.
27 Newer Surgery. B. M. Ricketts, Cincinnati.
28 *Family-Physician Refracting as a Factor in Medical Practice, and Its Promotion During 1910. L. Connor, Detroit.

28. Abstracted in THE JOURNAL, April 16, 1910, p. 1333.

Journal of Nervous and Mental Diseases, New York

October

29 *Resection of Dorsal Spinal Nerve Roots for Gastric Crises of Tabes. J. J. Thomas and E. H. Nichols, Boston.
30 *Autopsychology of the Manic-Depressive. E. C. Reid, Washington, D. C.
31 *Intradural Cyst of the Spinal Meninges Removed by Operation. C. S. Potts, Philadelphia.

29 and 31. Abstracted in THE JOURNAL, July 9, 1910, pp. 155, 156.

30. **Autopsychology of the Manic-Depressive.**—Reid says that although insight is generally given as one of the diagnostic features of manic-depressive insanity, a careful study of the question would indicate that it is not as constant as is generally supposed. The following figures are based on a series of 100 cases of manic-depressive insanity treated in the Government Hospital for the Insane during the past two years. These patients have been discharged recovered, or have recovered and remain in the hospital, owing to their short periods of lucidity: Insight complete, 39 per cent.; insight partial, 33 per cent.; insight lacking, 28 per cent. The majority of these are cases in which there was no doubt as to the diagnosis, inasmuch as they have had one, and in some cases many previous attacks. In compiling the above figures it was noted that all those cases manifesting complete insight into their condition were persons of average or superior intelligence, and that there were no colored persons in this group. Of the 28 individuals completely lacking in insight, 6 were colored and 22 were white. Only 5 of the 28 were persons of education. Reid is, therefore, led to believe that insight is, to a large extent, dependent on the intelligence of the individual. The records of this hospital fail to show that insight is ever complete in the colored race.

American Journal of Urology, New York

September

32 Bilateral Renal Lesions. A. T. Osgood, New York.
33 Bubo of Chancroid and Its Treatment. C. G. Cumston, Boston.
34 Method of Determining Size of Inner Visual Field of Cystoscopes and Cysto-Urethroscopes. L. Buerger, New York.
35 Invasion of the Gonococcus of Neisser into Bones, Joints, Tendons and Bursæ. J. P. Fiske, New York.
36 Perforation of Intramural Portion of Left Ureter by a Calculus. C. S. Stern, Hartford, Conn.

Northwest Medicine, Seattle

October

37 Alimentary Intoxication. J. Bilderback, Portland, Ore.
38 *One Thousand Cases of Obstetrics. J. S. Moore, Portland, Ore.
39 Interscapulo-Thoracic Amputation for Malignant Diseases. J. B. Eagleson, Seattle, Wash.
40 Mixed Infection in Surgical Disease. H. Power, Spokane, Wash.
41 Carcinoma of the Stomach in a Young Woman, Simulating Nervous Vomiting. G. F. Koehler, Portland, Ore.

38. **One Thousand Cases of Obstetrics.**—Of the whole number of cases included in Moore's list there have been 16 deaths, a mortality of 1.6 per cent. The causes of death have been: Sepsis 7, eclampsia 5, tuberculosis (last stage) 2, pneumonia 1, typhoid 1. In the last 450 cases there has been but one death from septic infection. There were 12 cases of eclampsia; 4 cases of placenta prævia, all marginal except one, in which the os was entirely covered. Hematoma occurred once. In this instance the tumor of the vulva was as large as a fetal head. It occurred postpartum and did not, therefore, interfere with delivery. Rupture of the lower uterine segment occurred twice, in both instances extending above the

vaginal junction. Prolapse of the funis occurred 5 times with the loss of 2 children. Moore had 3 cases of fibroma interfering with delivery. In 1 case a low attached pedunculated tumor was detached and brought away before the advancing head in the grasp of the forceps. In the other 2 cases the tumors were intramural and so obstructed the passage as to render delivery difficult. This was accomplished, however, without further interference than the use of forceps.

In Moore's series there have been 4 cases of twins. There have been 17 still-born children from the following causes: prolapsed funis, 2; trauma from difficult deliveries, including 1 craniotomy, 5; breech deliveries with retained head, 2; children of eclamptic women, 2; placenta prævia, 2; causes unknown, 4. The sexes were divided very evenly, 517 girls and 483 boys. A somewhat remarkable fact in connection with these cases is that fully 50 per cent. of the mothers have been primiparæ. When it is considered that not 20 per cent. of women in the childbearing period are recent brides, what, asks Moore, is the inference in a record like this? Simply, American women who are at all engaged in the perpetuation of the race have one child and quit.

Journal of the South Carolina Medical Association, Charleston

September

42 Prevalence of Pellagra. J. W. Babcock, Columbia.
43 Hemolytic Reaction in the Diagnosis of Syphilis. F. B. Johnson, Charleston.
44 Medical Inspection of School Children in South Carolina. E. A. Hines, Seneca.
45 Dental Inspection of Public School Children. J. P. McCreary, Spartanburg.
46 Hemorrhoids. A. D. Morgan, Perry.
47 Cholera Infantum. J. J. Vernon.
48 Don'ts in Medicine and Surgery. W. Cheyne, Sumter.

Archives of Internal Medicine, Chicago

October 15

49 *The Heart Muscle in Typhoid. L. Hamman, Baltimore.
50 Functional Disturbances in Paroxysmal Tachycardia. A. D. Hirschfelder, Baltimore.
51 *Pharmacology of Ergot. H. C. Wood, Jr., and C. A. Hofer, Philadelphia.
52 *Utilization of Milk-Fat by an Atrophic Infant. A. H. Wentworth, Boston.
53 Further Investigations in Experimental Myocarditis. M. S. Fleisher, Overbrook, Pa., and L. Loeb, Philadelphia.
54 *Constriction of the Splanchnic Arteries and the Association of Cardiac Hypertrophy with Arteriosclerosis. W. T. Longcope and A. T. McClintock, Philadelphia.
55 *An Individual Quantitative Index to Tuberculin Dosage in Treatment. W. C. White and K. H. Van Norman, Pittsburg, Pa.

49. **Heart Muscle in Typhoid.**—In a study of forty-three hearts from patients dying of typhoid, Hamman was able to find some changes in practically all, although in most the lesions were not extensive enough to allow one to assume with certainty that the efficiency of the heart muscle was compromised. In at least six of the cases both the fiber and interstitial lesions were so intense that he could hardly associate their presence with complete efficiency of the organ. He does not find any evidence of widespread change in the smaller branches of the coronary arteries, but frequently periarteritis and endarteritis in the large and medium-sized branches. No doubt these lesions must interfere in some degree with the nutrition of the heart and are of importance both for the immediate efficiency of the organ and its future integrity.

There are certain symptoms during the course of an acute infectious disease which point directly to the presence of some cardiac lesion and often to cardiac insufficiency, notably irregularities of rhythm, and the physical signs of beginning dilatation. Certain sudden deaths can be satisfactorily explained only on the assumption of abrupt cardiac failure. It is during convalescence particularly that the symptoms of a damaged myocardium stand out most clearly. Such symptoms are not nearly so common after typhoid as after other infections, notably diphtheria, but they occur frequently enough to indicate the significance of the damage the heart has sustained. Undoubtedly these lesions of the myocardium and of the arteries are of the greatest importance for the future health of the individual. Typhoid has not in this regard the same importance as rheumatism, syphilis, or diphtheria, but on account of its prevalence is a factor seriously to be reckoned with. The prevention of infectious diseases will probably prove one of the strongest prophylactic measures against the degenerative lesions of the circulatory system.

51. **Pharmacology of Ergot.**—The important facts brought out by Wood and Hofer are to the effect that ergot is a stimulant to all the unstriped muscle tissue of the body. As a part of this general action there is a stimulant effect on the arterial muscles and probably also on the heart. The action on the blood-vessels occurs after destruction of the vasomotor center and, therefore, must be the result of an effect on some portion of the peripheral vasomotor mechanism. The degree of elevation of blood-pressure affords an accurate criterion of the activity of ergot and is, in their opinion, the most available method for the biologic assay of the drug. The active principle of ergot is an alkaloidal substance which occurs in the drug probably in chemical union with a resinous body. For the combination they suggest the retention of the name suggested by Jacobi—sphacelotoxin—and for the alkaloidal substance the term applied by Kraft—hydro-ergotinin. The percentage of sphacelotoxin varies accurately with the physiologic activity of different specimens of ergot. The percentage of sphacelotoxin in a fluid extract may easily be estimated by precipitating with water and extracting with benzol. A fluid extract of ergot exposed to the air deteriorates extremely rapidly. The deterioration of fluid extract of ergot may be much retarded by protecting it against contact with the air, but under the most favorable conditions there is a loss of strength approximating 10 per cent. a month.

52. **Utilization of Milk-Fat.**—This paper furnishes a comparison of the results obtained from three observations made on an atrophic infant in which the absorption of fat was determined. Each observation lasted for 3 days, during which time the fat in the food and feces was determined. For 12 days immediately preceding the first observation the infant was fed exclusively on human milk and the first observation succeeded this preliminary period without interruption. There was an interval of 4 days between the first and second observations and an interval of 3 days between the second and third observations. During the first observation the infant was given 840 c.c. of breast-milk daily. During the second observation he was given 840 c.c. daily of a mixture of cow's milk containing approximately 3 per cent. of fat, 6 per cent. of milk-sugar and 1 per cent. of protein. During the third observation the infant was given 840 c.c. daily of a mixture of cow's milk prepared with rennet, in which the percentages of fat, sugar and protein were approximately the same as during the second observation. In the interval between the first and second observations the infant was fed on breast-milk. In the interval between the second and third observations he was given the same preparation of cow's milk treated with rennet that he received during the third observation. Carmin was given at the beginning and end of each observation.

The dried feces from the breast-milk period contained 33.4 per cent of fat; from the cow's-milk period 54.4 per cent. and from the second cow's-milk period 52.75 per cent. The difference between the breast and cow's-milk periods is offset to a great extent when the total percentage of excreted fat is estimated. Assuming that the fat in the feces represents fat that has been ingested, then 10.6 per cent of the ingested fat was excreted in the feces during the breast-milk period against 11.5 per cent. during each of the cow's-milk periods. Wentworth has little doubt that the absorption of fat during the breast-milk period was disturbed by the excessive quantity of fat ingested the first day, and that these percentages do not afford an accurate basis for comparison of the three periods. During the breast-milk period the infant ingested 11 gm. and absorbed 10.35 gm. more fat than during either of the cows'-milk periods. In other words, he absorbed 16 per cent. more fat during the breast-milk period than during either of the cow's-milk periods.

54. **Constriction of the Splanchnic Arteries.**—Sudden occlusions of the superior mesenteric artery in dogs results in hemorrhagic infarction of the intestines. Permanent constriction of the superior mesenteric artery and celiac axis, as well as gradual occlusion of one or both of these vessels, may be present in dogs for at least 5 months, without

giving rise to a definite and constant elevation of blood-pressure or to hypertrophy of the heart. At necropsy, no definite association can be found in man between sclerosis of the abdominal aorta and great splanchnic vessels and cardiac hypertrophy.

55. **Quantitative Index to Tuberculin Dosage.**—The authors maintain that it is just as possible to obtain a constitutional reaction from tuberculin placed on the skin as from tuberculin introduced beneath the skin. Tuberculin reactions, whether local, focal or constitutional, must be looked on as varying grades of the same response of the body to a varying quantity of tuberculin used. In the body in which tuberculosis has developed, the degree of the reaction of the surface cells to the poison contained in the different tuberculins depends on (a) depth of scarification; (b) point of application; (c) distribution of lymphatics; (d) readiness of absorption; (e) exact amount of tuberculin used. At times the serum of individual patients contains a substance which is capable of producing a cutaneous tuberculin reaction in individuals who are very susceptible to tuberculin. The interval of dosage varies for the result desired, less than 7 days for tolerance, and 14 or more for retention of the reaction power of the cells. In the majority of patients, if the interval of doses be 2 weeks or more, the amount of local reaction from the same dose of tuberculin does not change in a period of many months. It is possible by determining the minimal cutaneous reaction to 0.01 c.c. of varying solutions of tuberculin, to state the exact amount of tuberculin which will produce a certain grade of reaction when introduced beneath the skin.

Journal of the Arkansas Medical Society, Little Rock

September

56 Diagnosis and Symptomatology of Typhoid. A. E. Harris, Little Rock.
57 Typhoid—Its Prevention. O. K. Judd, Little Rock.
58 Peculiarities and Some Peculiar Types of Typhoid. G. A. Warren, Black Rock.
59 Treatment of Typhoid. E. R. Dibrell, Little Rock.

Journal of Biological Chemistry, Baltimore

October

60 Partial Hydrolysis of Proteins. P. A. Levene, D. D. Van Slyke and F. J. Birchard, New York.
61 Insoluble Lead Salts of Amino-Acids. P. A. Levene and D. D. Van Slyke, New York.
62 Refractive Indices of Solutions of Certain Proteins. T. B. Robertson, San Francisco.
63 Metabolism Experiment as a Statistical Problem. H. L. Rietz and H. H. Mitchell, Chicago.
64 *Digestibility of Bleached Flour. E. W. Rockwood, Iowa City, Iowa.
65 Effect of Alkali on Melanin. R. A. Gortner, Washington, D. C.

64. **Digestibility of Bleached Flour.**—The experiments of Rockwood tend to show that the gluten of bleached flour, both cooked and uncooked, digests somewhat more readily than that of unbleached flour. Bread made with yeast from bleached flour did not differ in digestibility from that made from unbleached flour. The nitrite reacting material largely or altogether disappears before the bread is removed from the oven. Boiled starch prepared from bleached and unbleached flour forms, by the action of pancreatin, reducing sugar at equal speeds. Tested with iodin there is no difference in the rapidity of starch digestion, either by pancreatin or by the salivary ferment. Diastase gives the same results.

Bulletin of the American Academy of Medicine, Easton, Pa.

October

66 Adolescence and the Sex Problem. W. S. Hall, Chicago.
67 Social Aspect of Gonococcal Infection of the Innocent. W. A. N. Dorland, Philadelphia.
68 Gonococcus Infections in Women. H. O. Marcy, Boston.
69 Causes and Prevention of Venereal Diseases in Children. C. D. Lockwood, Pasadena, Cal.
70 *Ocular Disease in Hereditary Syphilis. S. D. Risley, Philadelphia.
71 *Black Plague and the Educational Remedy. G. R. Dodson, St. Louis.
72 *Social Plagues and the Public Schools. I. S. Wile, New York.
73 Introduction of Social Hygiene in the Public Schools. C. F. Hodge, Worcester, Mass.
74 *Advancement of Medical Education. G. M. Linthicum, Baltimore.
75 *The Five-Year Course. J. W. Scane, Montreal, Canada.

70, 71 and 72. Abstracted in THE JOURNAL, July 16, 1910, p. 244.

74. Abstracted in THE JOURNAL, April 9, 1910, p. 1228.

75. Abstracted in THE JOURNAL, April 16, 1910, p. 1331.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October

76 Causation of Menstrual Disorders. E. Novak, Baltimore.
77 *An Improved and Perfected Operation for the Relief of Extreme Cases of Procidentia, Cystocele and Rectocele. J. R. Goffe, New York.
78 *Postoperative Neuroses of Pelvic Origin. H. W. Crouse, El Paso, Texas.
79 *Twisted Pedicles. F. N. Ward, San Francisco.
80 Combined External and Vaginal Version. H. M. Stowe, Chicago.
81 Surgery of the Upper Pelvic Floor by Direct (Suprapubic) Approach. W. M. Polk, New York.
82 Pathologic Diagnosis of Incipient Carcinoma of the Uterus. I. C. Rubin, New York.
83 Pregnancy Following Salpingectomy. J. O. Polak, Brooklyn.
84 *A Modified Gilliam Operation for Suspending the Uterus by the Round Ligaments. J. R. B. Branch, Baltimore.
85 Missed Abortion and Labor. F. A. Rhodes, Pittsburg, Pa.
86 Vertex and Foot Presentation. P. E. Gilbert, Linneus, Me.
87 The Exceptional Child; The Influence of Environment and Education on His Development. S. P. Goodhart, New York.
88 Prevention of the More Common Errors of Development. J. P. Fiske, New York.
89 Treatment of Nasal Catarrh. C. G. Crane, Brooklyn.

77. Abstracted in THE JOURNAL, May 21, 1910, p. 1714.

78. **Postoperative Neuroses of Pelvic Origin.**—Crouse advises that we should be extremely careful to weigh the nerve features of our patients, together with the pathologic state of the female genitalia, before promising prompt relief after operations. A gynecologic examination is not complete without a careful examination of the sacral plexus, which is best located through the rectum. A sensitive state of this plexus, or other intrapelvic nerves, prohibits a promise that the irritating symptoms will promptly disappear after operation—the symptoms which frequently induce a woman to submit to the trying ordeal of a severe operation. Time, tonics, eliminatives, rest, and an assurance of ultimate success on the part of the surgeon, are the remedies needed.

79. **Twisted Pedicles.**—A series of interesting cases is reported by Ward. Briefly, they are as follows: Case 1. Acute torsion of an enormous hydrosalpinx of the right side simulating acute appendicitis, complicated by a 4 months' pregnancy; operation; recovery. Case 2. Twisted pedicle of a left hydrosalpinx; acute strangulation, followed by diffuse peritonitis; operation; recovery. Case 3. Twisted pedicle of a dermoid cyst of the right side with recurrent attacks of partial strangulation and peritonitis. Diagnosed as appendicitis by several physicians. The case was complicated by a dermoid of the left ovary; operation; recovery. Case 4. Parovarian cyst with twisted pedicle firmly bound down to uterus and accompanied by a peritonitis and persistent hemorrhage; operation; recovery. Case 5. Left parovarian cyst with a number of attacks of partial strangulation; no peritonitis; operation; recovery. Case 6. Left parovarian cyst with twisted pedicle; very severe dysmenorrhea; no adhesions; operation; recovery.

Ward says that the lesions most closely simulating acute torsion of a pelvic tumor, be it hydrosalpinx, parovarian or ovarian, are: acute appendicitis, ruptured tubal pregnancy, intestinal perforation, and acute intestinal obstruction. In all these lesions, the onset is inaugurated by localized sharp acute pain, accompanied by symptoms of shock, followed by those of peritonitis. In a case of twisted pedicle, the pain of the acute strangulation persists, to a greater degree, is more acute, agonizing, paroxysmal and cramp-like than the pain of a diffuse peritonitis unaccompanied by a strangulation. In ruptured tubal pregnancy or intestinal perforation, shock and collapse are more acute and profound. In intestinal perforation there is the history of the ulcer, and in the ruptured tubal pregnancy the menstrual history and the pelvic signs. In acute intestinal obstruction there is the inability to secure a bowel movement or the passage of gas. In all these lesions the treatment must be the same if the patient's life is to be saved, i. e., prompt surgical interference. In acute strangulation, the earlier the operation is undertaken, the less severe is the peritonitis with its accompanying adhe-

sions, the simpler is the operation, and the milder is the post-operative reaction.

84. **Suspending the Uterus by Round Ligaments.**—The operation referred to by Branch is done as follows: A small median abdominal or Pfannenstiel incision is made exposing the pelvic organs. A silk traction suture is passed through each round ligament about 3 cm. from the uterus. A purse-string suture of catgut is placed on each side beginning in the parietal peritoneum near the internal abdominal ring, including the portion of round ligament extending from the internal abdominal ring to the silk traction suture previously taken. This suture is tied later and closes up an open space through which a loop of bowel has been known to enter and became strangulated. A sharp Halsted clamp is pushed through the rectus muscle, its posterior fascia, and peritoneum, grasping the traction suture, and by drawing it the round ligament is brought out and readily sutured to the under surface of the outer portion of the fascia of the rectus. Fine silk is generally used for this purpose, care being taken not to strangulate the ligaments by too sharp a kink. The ligaments are usually not crossed over to the opposite side, but sutured to the fascia on its own side. The catgut purse-string sutures previously placed are now tied and the incision closed in layers throughout.

Branch emphasizes the importance first, of the purse- string catgut suture, and second, of the suturing of the round ligaments to the under surface of the rectus sheath, thus shutting off the peritoneal cavity from the exterior by strong fascial layers. In some cases the vaginal outlet was relaxed and perineorrhaphy was also done. Of the patients who came to be relieved of retroflexion, a large majority were nulliparous white women; 66 per cent of these are cured absolutely of their symptoms; 75 per cent. of subsequent pregnancies have been normal; 10 per cent. of the women suffer recurrence of symptoms after labor. The operation described is only fairly satisfactory, in that it falls short of fulfilling the requirements imposed on it.

Journal of Abnormal Psychology, Boston

October-November

90 Mechanism and Interpretation of Dreams. M. Prince, Boston.
91 Dreams as a Cause of Symptoms. G. A. Waterman, Boston.

Old Dominion Journal, Richmond, Va.

October

92 Acute Purulent Frontal Sinusitis. C. M. Miller, Richmond.
93 The Owen Bill and Its Opponents. S. A. Knopf, New York.
94 Remarks on Tic in Children. T. A. Williams, Washington, D. C.

Philippine Journal of Science, Manila

July

95 *Studies on Infant Mortality. A. J. McLaughlin and V. L. Andrews, Manila.
96 Relationship of Food to Physical Development. D. McCay, Calcutta, India.
97 Unsolved Health Problems Peculiar to the Philippines. V. G. Heiser, Manila.
98 Parthogenesis of the Female Crescent Body. H. M. Neeb.
99 Malaria Parasites of the Orang-Outan. G. Shibayama, Tokio, Japan.
100 Malarial Fever During the Puerperium. J. M. Atkinson, Hongkong.
101 *Tropical Bronchomycosis. A. Castellani, Ceylon.
102 *Intestinal Flagellate in Man. A. Castellani and A. J. Chalmers, Ceylon.
103 Clinical Aspects of Mycetoma. A. Hooton, Kathiawar, India.
104 *Prevention and Treatment of Amebic Abscess of the Liver. L. Rogers, Calcutta, India.
105 *Intestinal Amebiasis Without Diarrhea. W. E. Musgrave, Manila.
106 *Differential Blood Counts in Wet Preparations. E. R. Stitt, Canacao, P. I.

95. **Studies on Infant Mortality.**—The death-rate among Filipinos (47.65 per cent.) in Manila, as shown by McLaughlin and Andrews, is excessive compared with that of other nationalities: Spaniards, 12.05 per cent.; Americans, 13.27 per cent.; other Occidentals, 14.32 per cent.; Chinese, 16.64 per cent. This enormous death-rate is due to the high mortality of children. Of 9,307 deaths among the Filipino population, 6,041 or 64.9 per cent. were of children under the age of 5, and 4,542, or 48.8 per cent. were of infants under 1 year of age. According to the United States census of the year 1900, the deaths of children under 1 year constitute 18.28 per cent. of the total mortality; in France, from 1896 to 1900, the infant mortality constituted 20 per cent. of the total, but in Manila the deaths of infants under 1 year aggregate 48.8 per cent. of the total number.

Beriberi is the largest factor in the infant mortality of Manila. The deaths of breast-fed children constitute 73.74 per cent of the total infant mortality; furthermore, 87 per cent. of infants dying of beriberi and convulsions in Manila are breast-fed. The average Filipino mothers are in poor physical condition, many of them are beriberic and subsist on a diet favorable to beriberi. It seems that there is an intimate relation between beriberi of infants and a mother's milk poor in quality and lacking certain necessary elements which are not included in the mother's dietary. At first glance it might seem advisable to supplant breast feeding by artificial, but under existing conditions this would be a blunder. The children saved from beriberi would be sacrificed to enteric diseases. That small part of the population which is artificially fed furnishes 65 per cent. of the deaths from enteric diseases, and the breast-fed, much the larger part of the population, furnishes but 35 per cent. of the infant mortality from this cause; so that even in Manila, breast-feeding of infants exerts a deterrent influence on the mortality from gastrointestinal diseases. A possible solution of the problem lies in improving the quality of the mother's milk and encouraging the continuance of the custom of breast-feeding so general among the Filipino poor.

101. **Tropical Bronchomycosis.**—Castellani says that a type of bronchomycosis in which oidium-like and saccharomyces-like fungi are found is not rare in Ceylon. The condition might be called broncho-oidiomycosis, or more briefly broncho-oidiosis. Two types of the condition may be clinically distinguished, a mild and a severe one, the latter closely resembles phthisis. The mild type is apparently amenable to treatment with potassium iodid.

The strains of oidia found in Castellani's cases are different from the ordinary *Oidium ablicans* and *Oidium lactis*, as they do not affect milk. All the strains found by Castellani are identical in all respects, except that some produce gas in galactose and others do not. For the oidium which produces gas in galactose he proposes the name *Oidium tropicale*; for the saccharomyces he suggests the name *Saccharomyces krusei*. The diagnosis of broncho-oidiosis can be made only by bacteriologic methods. It is differentiated from phthisis by the absence of tubercle bacilli and the negative animal inoculation; from bronchial spirochetosis by the absence of spirochetes; and from endemic hemoptysis by the absence of the ova of the trematode. Care should be taken before making the diagnosis of bronchomycosis that the sputum is collected in sterile vessels and examined as soon as possible, because sputum left exposed to the air frequently becomes contaminated in the tropics with various species of non-pathogenic saccharomyces and oidia. Primary bronchomycosis should be also differentiated from those cases of chronic debilitating disease in which *Oidium albicans* spreads from the mouth to the bronchi.

Castellani has recently encountered two cases of a peculiar type of acute, fatal enterocolitis showing intermediate symptoms between dysentery and cholera. Some of the stools were serous and cholera-like; others consisted practically of mucus only. There was no blood. Both patients died within 48 hours. The stools, collected in sterile Petri dishes, were examined for *Vibrio cholerae*, with negative results. On the other hand, 85 per cent. of the colonies which developed on bile-salt agar and ordinary agar were of a peculiar spirillum; the others resembled organisms of the colon group. The cultural characteristics show the spirillum most probably to be a new species, for which Castellani proposes the name of *Spirillum zeylanicum*.

102. **An Intestinal Flagellate in Man.**—In the stools of patients in Ceylon suffering from ankylostomiasis, Castellani and Chalmers have observed a flagellate which is pear-shaped or rounded, measuring from 8 to 20 microns in diameter, possessing two flagella and an undulating membrane, and being capable of ameboid movements. It is easily cultivated together with bacteria on several media, the best of which is apparently nutrose-agar or nutrose-broth. The developmental

stages and the methods of reproduction have not as yet been studied and therefore the exact zoologic position of the parasite can not be defined. They propose to classify it provisionally under the genus *Bodo* and to name it *Bodo asiaticus*.

104. **Amebic Abscess of the Liver.**—Rogers attributes not a little of the recent improvement in the results of the treatment of liver abscess in the Calcutta hospitals to the adoption of a routine course of ipecacuanha in the after-treatment of liver abscesses, however they may be dealt with.

105. **Intestinal Amebiasis without Diarrhea.**—The purpose of this paper is to show that the prevalence of amebic infection of the colon without diarrhea is of sufficiently frequent occurrence to deserve careful consideration by clinicians and to make evident the necessity of altering our conception of the disease to conform with the acceptance of such observations. In selecting the fifty cases for this report, only those in which the clinical observations were of sufficient accuracy for publication and in which the diagnosis was confirmed by necropsy have been used. Of the fifty patients, eight were foreigners and forty-two natives of the Philippine Islands, forty-seven were males and three females. The causes of death were as follows: From peritonitis following perforation of the appendix, 3—2 of these were produced by amebic ulceration, the other by an unknown cause, not amebic; from liver abscesses, 4—in 1 perforating into the right pleura, 1 into the abdominal cavity, and 2 were without perforation; from acute pericarditis, 1; from pulmonary tuberculosis, 8—and in 3 of these abdominal tuberculosis was also present; from chronic æstivo-autumnal fever, 2; from perforation of amebic ulcers in the large intestines, 5—4 times in the cecum and ascending colon and once in the transverse colon; from acute beriberi, 7; from lobar pneumonia, 20. Characteristic amebic lesions were present at necropsy in all of the fifty cases. These lesions varied in type from those which were just beginning to those showing ulcers having the characteristic extensive destruction of the mucous membrane of the bowel so often seen in cases of amebiasis of long standing. Other parasites, such as monads, trichuris, hookworms and ascaris were present in several of these patients.

106. **Differential Blood Counts.**—By employing the ordinary technic for making a count of the white blood-cells, with the exception that he uses a diluting fluid made by adding five drops of Giemsa's stain to five cubic centimeters of 2 per cent. formalin, Stitt also is able quickly and accurately to make a polymorphonuclear percentage count, or a complete differential count in addition to that of the leukocytes. Another advantage is that blood-parasites are also perfectly stained, are shown distinctly, and by reason of the larger amount of blood visible in each field, the finding of them is far less tedious than where a stained, dry film is used. The usual technic in making the hemocytometer preparation is employed, Türck ruling being used. Stitt counts the leukocytes in the three upper or lower square millimeters, divides by three to obtain an average per square millimeter, multiplies by ten for the content of a cubic millimeter and then by twenty for the dilution (blood to 0.5, diluent to 11). Having counted the leukocytes he again goes over the same portion of the ruled surface and determines the polymorphonuclears and estimates the percentage of these to the total leukocytes. The red cells are practically diaphanous and not disintegrated as they are when acetic acid is used as a diluent; consequently it is easy to distinguish the particulars concerning the size, etc., of a particular red cell containing a malarial parasite.

Buffalo Medical Journal

October

107 Progress in Obstetrics and Gynecology. J. C. Webster, Chicago.
108 Ichthyosis. A. A. Young, Newark, N. J.
109 Conservation in Prostatic Hypertrophy. N. W. Wilson, Buffalo, N. Y.

Medical Fortnightly, St. Louis

October 10

110 Syphilis as a Non-Venereal Disease. A. H. Ohmann-Dumesnil, St. Louis.
111 *Family-Physician Refracting as a Factor in Medical Practice and Its Promotion During 1910. L. Connor, Detroit.
112 Obliteration of Drug Craving. W. F. Waugh, Chicago.

111. Abstracted in THE JOURNAL, April 16, 1910, p. 1333; also published in *The Lancet-Clinic*, Oct. 15, 1910.

Louisville Monthly Journal of Medicine and Surgery

October

113 *Teaching of Clinical Psychiatry. F. P. Norbury, Kankakee, Ill.
114 *Diagnosis of Surgical Lesions of the Kidney. L. Frank, Louisville, Ky.
115 *The Modern Doctor, His Successes, His Failures, His Future. J. K. Mitchell, Philadelphia.
116 Facts the Public Should Know About the Ear and Its Treatment. L. J. Lautenbach, Philadelphia.

113, 114, 115. Abstracted in THE JOURNAL, Oct. 1, 1910, pp. 1219 and 1220.

Annals of Surgery, Philadelphia

October

117 Transfusion by Carrel's End-to-End Suture Method. E. H. Pool and R. D. McClure, New York.
118 *Blood Transfusion in Hemophilia. C. Goodman, New York.
119 *Graft of the Vena Cava on the Abdominal Aorta. A. Carrel, New York.
120 *Treatment of Air Embolism. V. P. Blair and H. McGuigan, St. Louis.
121 Preservation of the Submaxillary Branch of the Facial Nerve in Operations on the Neck. C. E. Farr, New York.
122 Anesthol Poisoning, Causing Acute Yellow Atrophy of Liver After Operation for Ileocolic Intussusception. F. Torek, New York.
123 Epulis and Sarcoma of the Jaw. J. Speese, Philadelphia.
124 Differential Pressure in the Treatment of Empyema. E. M. von Eberts, Montreal, Canada.
125 Primary Sarcoma of the Stomach. A. E. Maylard and J. Anderson, Glasgow, Scotland.
126 *Function of the Appendix and the Origin of Appendicitis. E. M. Corner, London, England.
127 *A Simple Method of Suturing All Hollow Viscera. W. Bartlett, St. Louis.
128 *Rectosigmoidal Arterial Anastomosis. C. B. Davis, Chicago.
129 Bone Metastases of Hypernephroma. C. L. Scudder, Boston.
130 Plastic Repair of the Thumb. H. A. Haubold, New York.
131 *Wright's Solution for Drainage. L. R. G. Crandon, Boston.
132 Relation of the Ductless Glands to Surgery. J. E. Sweet, Philadelphia.

118. **Blood Transfusion in Hemophilia.**—In the case reported by Goodman, the patient was only 2½ years old. The donor was a young man, aged 19. The transfusion was continued for one hour and a half and was successful, checking all oozing.

119. **Graft of the Vena Cava on the Abdominal Aorta.**—The operation consisted of transplanting between the cut ends of the abdominal aorta a segment of vena cava. Its purpose was to study the details of the technic of the graft of a large vein on the aortic trunk and its remote results. Three experiments were performed on two cats and one dog. The three animals which underwent the transplantation of the vena cava on the abdominal aorta were in normal condition a few hours after the operation and recovered without any complication. The causes, which after several months brought about, directly or indirectly, the death of the animals are completely independent of the operations. Three months, ten months, and fourteen months after the operation the abdominal aorta of the animals and its venous segment were extirpated for the study of the anastomosis and of the venous wall. It was found that the venous wall reacts against the arterial blood-pressure by thickening its wall. The condition of the venous wall and of the anastomoses examined fourteen months after the operation shows that, for a long time, a segment of vena cava can functionate as a part of the abdominal aorta. It is probable that in the treatment of aneurysm, rupture of large arteries, embolus, and localized arteritis, the transplantation of venous segments can be used safely, but it must be emphasized that without a proper technic, the results of the operation will be disastrous.

120. **Treatment of Air Embolism.**—Cats and dogs were used by Blair and McGuigan. The animals were prepared for blood-pressure tracings. A cannula was inserted in the right external jugular close to its innominate junction, for the injection of air and adrenalin and salt solution. A continuous blood-pressure measurement was taken during the experiment, and is recorded in millimeters of mercury. A measured volume of air was injected in each case, when the quantity was small, injection was made with an air-tight syringe; when over 10 c.c. it was pressed in by a syphon. They found that injection of air into the heart, no matter how small the quantity, produces a disturbance of the circulation that can be readily

seen in the blood-pressure record; there are fall of pressure, dyspneic symptoms, and restlessness. If the volume of air injected be small, the changes are usually temporary; if large, a sudden fall of pressure to almost the base line occurs, great dyspnea and labored breathing, and a fluttering heart. The respiration always stops before the heart, but the ineffectiveness of the heart-beat is the cause of the respiratory failure. In other words, the practically valveless right heart cannot supply blood to be pumped to the respiratory center and the center fails while the heart continues to beat ineffectively, the blood-pressure being almost zero.

While the heart is in this condition, the injection of adrenalin is effective in restoring the normal pressure in some cases; in others it is worthless; whether or not it is of value seemed to depend largely on the character of the heart-beat at the time the injection was made and the length of time that had elapsed since respiration ceased. Except when air or fluid is rushed into the heart under considerable pressure, the heart-beat does not cease for some time, but becomes less and less strong. When at necropsy, after rushing air and fluid into the heart, no beat was seen, the beat always recurred on opening the heart and removing the internal pressure. In all cases in which at necropsy air was found in quantity in the left heart, adrenalin was ineffective. The action of adrenalin can also be most clearly seen if it is injected with the air, or closely following.

During these experiments the authors observed nothing that would verify the conclusions that the depression accompanying air embolism is due to blocking the pulmonary vessels with air, but the rarity with which traces of air were found on the left side of the heart or were seen in the carotid cannula, even after large quantities of air, 10 c.c. or more, had been rapidly disposed of, leads them to the tentative conclusion that at least a part of the air was either eliminated or absorbed while passing through the pulmonary circulation. Based on the observations made during these experiments, they believe that death from air embolism is clinically a rare occurrence, but should grave depression follow the aspiration of air into a vein, the treatment they propose is the introduction of adrenalin chlorid in a fairly concentrated solution, 1:10,000 to 1:1,000, directly into the right ventricle and that this be accompanied by a small amount of normal saline solution. In their experiments they always used 40 c.c. or more of saline solution, but in most cases a large quantity of air had been put in under pressure and it required a pressure of 60 cm. of water to force the fluid into the vein. They suggested that for clinical application a fine hypodermic needle could be pushed through the chest wall directly into the right heart, which could be done by inserting the needle through the chest wall and lung at the anterior extremity of the third or fourth right intercostal spaces. They observed no evil effects in dogs from perforating the heart wall with a fine needle, but to attempt to do it through the chest wall would be a very uncertain procedure.

126. **Function of the Appendix.**—Corner claims that: (a) Lymphoid tissue is the characteristic feature of the cecal apex. The vermiform appendix of man is represented in the vertebrate kingdom by a mass of lymphoid tissue, situated most frequently at the cecal apex. (b) As the vertebrate scale is ascended, this lymphoid tissue tends to be collected together into a specially differentiated portion of the intestinal canal, the vermiform appendix. (c) The vermiform appendix of man is not, therefore, solely a vestigial structure, though it undoubtedly represents the terminal part of the cecum. On the contrary, it is a specialized part of the alimentary canal, Nature having made use of a disappearing structure and endowed it with a secondary function by giving it lymphoid tissue to protect the body against the micro-organisms in the ileocecal region. The comparative absence of lymphoid tissue in the rest of the large intestine is inexplicable, as it is in the cecum that the feces have been brought up to the proper consistence to allow of their passage along the colon, and in consequence there are no more prolonged periods of "rest" in the presence of moisture, the feces becoming dryer and harder; consequently there will be less fermentative action.

127. **Suturing Hollow Viscera.**—Since it has been abundantly proved that perforating stitches are harmful in theory only, Bartlett asks why not carry all gut needles into the lumen and thus be sure to get the firmest sort of a hold. That is what he does.

128. **Rectosigmoidal Arterial Anastomosis.**—Davis examined twenty-one subjects. The rectosigmoidal loop was present in nineteen cases; superior hemorrhoidal artery bifurcated before junction with loop, seven cases; loop anastomosed with lower division, two cases. The lowest loop was found in one subject with the critical point almost in the bottom of the cul-de-sac of Douglas. In the vast majority of other cases it was found about 1.5 cm. beneath the promontory of the sacrum. Davis suggests, therefore, that following high resection of the rectum, gangrene of the stump can be avoided by ligation of the superior hemorrhoidal artery proximal to the point of entrance of the anastomotic loop from the sigmoidal artery. When high resection of the rectum is to be done by the sacral route, a preliminary abdominal incision is of value to determine the presence and location of the critical point, the relations of the superior hemorrhoidal artery, and permits of a definite placing of ligatures to check hemorrhage. The anastomotic loop is not present in some cases. High resection of the rectum for carcinoma in these cases should be terminated with a permanent colostomy.

131. **Wright's Solution for Drainage.**—This solution is composed of sodium chlorid 4 per cent. and sodium citrate 1 per cent. in water. Sodium citrate (1 per cent.) in the solution causes a precipitation of calcium salts in the lymph, removing thereby that which is essential to coagulation. The presence, then, of the sodium citrate in the wound cavity ensures a comparatively free exit of the lymph discharge. The sodium chlorid, in hypertonic solution (4 per cent.), by osmosis brings about a flow of lymph through the walls of the cavity, the sodium citrate having dissolved clot and prevented further coagulation. Thus there is brought about a continuous pouring forth of lymph of high antitrophic power from the blood stream and lymph spaces, through the walls of the abscess cavity and out through the wound. The 4 per cent. solution is in itself antiseptic since bacteria will not grow in it. The abscess is opened by a wound as small as will allow the cavity to be wiped out, or thoroughly emptied by expression. The skin round the wound is thoroughly cleaned with 70 per cent. alcohol.

The skin in this region, up to the very mouth of the wound, is smeared with boric acid or eucalyptus vaselin. If the skin tension closes the lips of the wound a bit of rubber dam may be put in. The wound is covered with a voluminous pad of gauze or of absorbent cotten covered with gauze, dripping wet with hot salt and sodium citrate solution. A many-tailed bandage or some other application holds the poultice in position and the part is put at rest. Outside the dressing may be applied a hot flaxseed poultice or a hot-water bottle. In any case, as often as the dressing gets cold more of the hot solution is poured over the whole dressing to wet and warm it again, or the dressing is removed and the whole part is soaked, if possible, or bathed with the same solution. The amount of sodium chlorid in this solution is such that it will irritate the skin and lead to pustulation in a few days. Hence the frequent application of protective vaselin to the unbroken surrounding skin. This solution is contraindicated if there is a tendency to persistent oozing of blood from the wound. It is also contraindicated when the formation of protective adhesions is desirable, as in certain abdominal wounds just after operation. The solution should be used only for the first 36 to 72 hours after operation, during the acute stage of the inflammation. If used longer it leads to maceration and indolence in healing.

Journal of the Oklahoma State Medical Association, Muskogee

October

133 Hygiene of Infancy and Childhood. G. W. Little, Okmulgee.
134 Surgical Treatment of Bone Tuberculosis. L. H. Huffman, Hobart.
135 Anterior Poliomyelitis. J. C. Mahr, Oklahoma City.
136 Diagnosis and Treatment of Extra-Uterine Pregnancy. T. B. Oldham, Muskogee.
137 Eclampsia. G. A. McBride, Fort Gibson.
138 Concussion. B. F. Fortner, Vinita.

Journal of the Missouri State Medical Association, St. Louis

October

139 Public Health. B. S. Warren, St. Louis.
140 Clinical Significance of Epigastric Symptoms. H. C. Crowell, Kansas City.
141 Problems Presented by Dermatoses Coexisting with Syphilis. J. Grindon, St. Louis.
142 Medical Roentgenology as a Specialty. R. D. Carman, St. Louis.
143 Life-Insurance Examinations. G. W. Goins, Breckenridge.
144 How to Interest Young Men in the Society. F. W. Burke, Laclede.
145 Spinal Anesthesia. C. A. Potter, St. Joseph.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

October 8

1 *Hereditary Aspects of Nervous and Mental Diseases. F. W. Mott.
2 Congenital Pyloric Stenosis. R. Hutchison.
3 Prizes and Performances. S. S. Sprigge.
4 Woman's Sphere in Medicine. E. W. Roughton.
5 Evolution of Surgery. W. Thorburn.
6 Acidosis. D. L. Edsall, Philadelphia.
7 Chronic Constipation and Its Treatment. J. E. Goodhart.
8 *Aneurysm of the Aorta Communicating with the Superior Vena Cava. L. Humphrey.
9 Acromegaly with Hypertrophied Heart. L. Humphrey.
10 Evolution of Racial Types of Europe. J. S. Mackintosh.
11 Starvation and Purgation in the Relief of Disease. G. Guelpa.
12 Injection Treatment of Neuralgia and Sciatica. W. Harris.
13 Effects of Electrical Currents on Blood Pressure. E. Sayer.
14 Tuberculin in Pulmonary Tuberculosis. W. C. Wilkinson.
15 Operative Treatment of Simple Fractures. W. A. Lane.

1. **Hereditary Aspects of Nervous Disease.**—Mott feels convinced from his own observation and experience that Gowers is correct when he asserts that there are few diseases in the production of which inheritance has a more marked influence than in epilepsy, and the traceable influence is always far less than that which exists. Moreover, he has observed that a similar heredity occurs in a considerable number of cases of insane epileptics. Mott has endeavored to ascertain the proportion of insane, feeble-minded and epileptic members occurring in the pedigrees of his hospital patients. In thirty-two pedigrees, which would include about 1,000 living representatives and 250 dead individuals, there were eight who had been in asylums, and in eight others fits were chronicled. In no case was either parent of the patient insane or epileptic. Two of the pedigrees furnished most of the cases. One was that of a patient suffering from neurasthenia, in which there were, besides insanity and epilepsy, migraine, hysteria, deaf-mutism, and imbecility. The other was the pedigree of a patient with exophthalmic goiter with several neuropathic members in the stock.

Two years ago Mott undertook to study the convolutional pattern of the brains of relatives dying in the asylums, with a view of seeing whether there is a similarity in the convolutional pattern in the members of the same family, just as there is a similarity of the physiognomy. An inquiry was initiated concerning relatives at the various asylums, and a request was made that brains of relatives should be kept for examination after the necropsies had been made. Isolated instances of two or more members of the same family were known to exist by Mott in the various asylums; but it soon became evident that a properly coordinated card system would reveal the fact that a very large number of parents and offspring and brothers and sisters, besides collateral relatives, were resident in the London County Asylums, or had been recently. In June the numbers had risen from a few hundred known instances to 1,834, made up from 854 families. Of 752 instances of two of a family, making in all 1,504 cases, the vast majority are directly and not collaterally related.

Another fact stands out prominently in an analysis of the 752 instances of two of a family, and that is, the much greater incidence of transmission from parents to offspring through the female side. The mother transmits to the offspring in the proportion of 60.7 per cent., the father 39.3 per cent. This is not accounted for wholly by the fact that there are more females in the asylums insane than males, for the ratio of females to males in the asylums is rather less than 11 to 9. When pairs of offspring of the two sexes are affected, the proportion of males to females is 43.9 per cent. to 56.1 per cent., a difference of 12.2 per cent. But the percentage in which the mother transmits insanity to the offspring as compared with the father is as 67.7 per cent. to 39.3 per cent., a difference of 26.4 per cent., and this increase of 14.2 per cent. is mainly due to the fact that she transmits to the daughter nearly twice as often as the father does. It may well be asked whether this may not partly be due to the fact that the daughter, at the time of life when insanity is manifested, is more at home than the son, and therefore has more to do with her insane mother. Grandparents' heredity undoubtedly is very much below the proper ratio; it is due to the fact that there is far more difficulty in obtaining records. The hereditary transmission from females, however, markedly preponderates. In collateral insanity there is a more marked preponderance of females affected than males than in direct heredity, but the numbers are too few to draw any very decided conclusions, except the fact that the females with aunt affected are as numerous as all the rest combined. Of an average insane population of approximately 20,000, 717 cases are thus related, representing 342 families.

Mott says that every insane person should be considered as a biologic study. To say, merely, that one of his ancestors was insane, and therefore he has a bad heredity, and to label him thus, as is the common custom, is absurd. What we wish to know is what he was born with, and what has happened to him since birth. Consanguinity does not appear to produce insanity or nervous disease, provided both stocks are free from taint; but if there is insanity or epilepsy (not necessarily in the first ascendants, but even in the collaterals), then intermarriage of first cousins from these two stocks with collateral insanity will tend to insanity or epilepsy in some cases in the offspring of the two sane related parents. Mott has observed in many of these pedigrees, that maniac-depressive insanity in a stock is frequently associated with suicide in the members so affected, and even in others not affected. The tendency to suicide often runs in families, and some remarkable pedigrees have been published in which members of families in successive generations have taken their lives in a particular way, and sometimes even at a particular age; there is a suicidal obsession. Mott would explain this by initiative suggestion acting on a neuropathic stock. The transmission of an acquired character, such as the desire for alcohol, is contrary to the doctrine of heredity. That the desire for alcohol is transmitted from parent to offspring, in the form of like begetting like, instead of like begetting a tendency to like, Mott claims to be without foundation. What may be transmitted, he says, is the temperament that induces alcoholism, namely, a lack of will power and moral sense.

8. **Aneurysm of the Aorta.**—The patient in this case was a man, aged 49, who had previously been in the army for fifteen years. There was no history of previous illnesses, but he had probably had syphilis. On July 30, 1908, he drove into the country, and after returning stabled his horse and ate his supper. About 9 p. m. he felt a sudden feeling of suffocation, as if his throat was swollen. He was admitted that night into the hospital by the house physician, who noted that he was very short of breath, that there was some swelling of the neck, and that a loud systolic murmur was audible over the chest. He complained of no pain, but much distress. The next morning the patient was sitting up in bed with evident dyspnea, the eyeballs were staring; there was extreme cyanosis of the face and ears, and the neck looked thick and swollen; there was some swelling of the right arm and the right side of the chest, and the right hand was cold. The right pupil was larger than the left, the pulses were equal, and the pulse rate 100. On examination of the chest, the apex beat was in the fifth interspace, ¼ inch external to the nipple line, and there was visible pulsation over the second, third and fourth right intercostal spaces; over this area there was dulness to percussion, and a systolic thrill could be felt. On auscultation there was a systolic murmur at the apex, and over the pulsating area at the aortic base there was a loud continuous murmur of a whizzing character with marked systolic intensification; the murmur could also be heard behind over the spines of the dorsal vertebræ; the

second sound could be heard feebly. The lungs were emphysematous.

After a few days the more urgent symptoms were relieved, but there was still marked cyanosis of the face, and there was some edema of the right side of the chest and right arm. The superficial veins were becoming visible over the chest, and the external jugular veins, especially the right, were prominent. At first there appeared to be some slight systolic pulsation in this vein, which soon ceased. During the next few weeks the patient's condition gradually improved, so that by September 28 he was able to be up and about, and was discharged from the hospital. The physical signs then showed that the pulsation to the right of the sternum was less marked, and the continuous murmur had much diminished in intensity; the edema was also passing off, but the superficial veins were becoming more visible.

He was readmitted the following November for an attack of bronchitis following a chill, and it was then noted that the cardiac signs were much the same, except that the thrill and murmur had much diminished in intensity, but that the collateral circulation in the veins had visibly increased. These latter consisted of three large channels on each side of the abdomen, passing up from below from the iliac veins, four on the front of the abdomen, and one situated laterally on each side; the lateral veins passed up to the axilla and veins of the arms, the two in front joined the epigastric and internal mammary veins on the front of the chest wall; there were also some large channels from the thyroid veins. All these large veins were tortuous, and the current of blood was shown, on exercising pressure, to be traveling from above downward.

The patient left the hospital again and enjoyed fairly good health for the next twelve months; he could walk about with comfort, but was not capable of exertion or active exercise. In November, 1909, he began to be troubled with cough and dyspnea, and was readmitted to the hospital. There was then increasing cyanosis and edema of the right arm, neck and chest, and the lower part of the abdomen was also swollen, but not the legs. The veins were all more distended and loaded, and the intercostal veins were very prominent, but no pulsation could be seen or felt in the external jugulars. The heart was noticed to be markedly displaced downward; the apex beat was in the sixth intercostal space. He complained of pain around the left side of the chest and under the scapula. He became rapidly worse, and signs of hydrothorax supervened. He died on Jan. 13, 1910, having lived close on eighteen months from the time the aneurysm ruptured into the vein.

A necropsy was performed. At the upper part of the right side of the thorax there was a mass consisting of the aneurysm, distended superior vena cava, right auricle, lung and pleura, intimately adherent together; the heart was greatly displaced downward and was placed somewhat transversely, so that the upper border of the right auricle was at the level of the fourth interspace. All the external veins were greatly dilated, and the venæ azygos, major and minor, were also much distended. The heart was slightly enlarged. The aorta was dilated and very atheromatous, and from the right and posterior part of the first part of the arch an aneurysm of the size of a Tangerine orange protruded toward the right side, pressing on and partly enveloping the superior vena cava; above, this vein was greatly dilated. The aortic valves were competent. There was a second aneurysmal dilatation at the junction of the second and third parts of the aorta. The other organs were healthy.

Lancet, London

October 8

16 *Hereditary Aspects of Nervous and Mental Diseases. F. W. Mott.
17 *Meaning of Audible Signs in Mitral Stenosis. A. Morison.
18 *Active Lobar Collapse of the Lung After Abdominal Operations. W. Pasteur.
19 Ehrlich-Hata "606." W. E. Home.

16. See Abstract No. 1.

17. **Meaning of Audible Signs in Mitral Stenosis.**—The case reported by Morison exemplifies a common clinical experience, namely, that of the existence of unsuspected valvular disease. A well-made man, unemployed but employable, is exhausted, and doubtless depressed, by a long and fruitless search for work, takes insufficient food for a fatiguing journey, develops a suppurative tonsillitis, and when apparently convalescent suddenly finds himself overwhelmed by cardiac palpitation. After recovery a short recurrence of tonsillitis with some rise of temperature induces an arrhythmic action, which suddenly blazes into a short and sharp tachycardia, which subsides as suddenly as it arose. Morison maintains that these disturbances of cardiac motion are originated in the nervous, not in the muscular system of the heart, and that they may be induced by any exertion, emotion, enfeeblement, or reflex irritation, which tends, under certain circumstances, by accelerating the action of the heart or otherwise, to cause the muscular factor in this or that part of the organ to escape from the control of the nervous system.

The physical signs on which Morison dwells more particularly are the absence of bruit in the tachycardial heart; the triple rhythm audible at the apex; the so-called crescendo murmur so characteristic of this lesion in many cases; and the arrhythmia. In the case related there were four phases as regards the audible signs:

1. A period of accelerated regular action, in which the first and second sounds resembled one another in duration and character, a "tic-tac" rhythm, as it has been called, in which no adventitious bruit was audible.
2. A period of slow action, in which there were triple rhythm at the apex and reduplication of the second sound at the base, when bruit was likewise absent, except in so far it was represented by a bruit-like admixture or modification of the last of the sounds at the apex.
3. A period somewhat suddenly inaugurated by the complete presence of a characteristic and loud crescendo murmur at the apex, accentuated first sound, and disappearance of the triple rhythm, while the reduplication of the second sound persisted—the time interval or duration of this reduplication at the base being the same, so far as the ear could determine, as when the triple rhythm with slow rate was present.
4. A period just prior to the relapse of this case into the second tachycardia, when the heart was arrhythmic, moderately accelerated (114), and still presented the presystolic crescendo bruit, which was abolished by the succeeding regular tachycardia, the latter being suddenly followed by triple rhythm, slow rate, and a bruit noted as diastolic; this, again, yielding to the characteristic presystolic crescendo murmur with restored cardiac force, with which the patient left the hospital.

18. **Active Lobar Collapse of the Lung.**—The cases described by Pasteur prove, he says, as conclusively as clinical evidence can prove, that sudden deflation of large tracts of lung may occur after certain surgical operations with a fairly well-defined train of attendant symptoms and physical signs.

Case 1.—Radical cure of hernia; active collapse of the right lower lobe 24 hours after operation; recovery.
Case 2.—Abscess in the right side of the abdomen following operation for right inguinal hernia; incision and drainage; active collapse of the right lower lobe on the fourth day; recovery.
Case 3.—Left salpingectomy for pyosalpinx; active collapse of the left lower lobe on the third day; recovery.
Case 4.—Cholecystitis; cholecystectomy; massive collapse of the right, middle and lower lobes early on the fourth day; recovery.
Case 5.—Gall-stone colic; cholecystotomy; active collapse of the right lower lobe on the second day, with recurrent attacks of heart failure; recovery.

Pasteur looks on these five cases as clear examples of active lobar collapse from reflex inhibition of the diaphragm, occurring most probably in otherwise fairly healthy lungs, and in the absence of inflammatory lesions of the diaphragmatic pleura or peritoneum, such as are almost invariably found in fatal instances of the condition after surgical operations on the abdomen. As to the cause of active lobar collapse in these cases, Pasteur says the following points are to be noted:

1. The cases of diphtheritic paralysis quoted above prove beyond question that arrest of diaphragmatic movement does cause massive lobar collapse of the lung.
2. The entire series of fatal cases (other than those due to paralysis) have, without exception, this feature in common, namely, the existence of a powerful source of irritation in the neighborhood of the diaphragm within the area supplied by the vagus—that is to say, a condition of things in which reflex inhibition of that muscle might very readily be set up.
3. In four out of five cases the lung affected is on the same side as the operation wound.
4. The disappearance of apex beat and heart sounds from the normal position and their displacement toward the affected side.
5. The sudden overdistention of the unaffected lung.
6. The almost complete silence over the affected lobe.

In the face of this evidence, Pasteur continues, it is difficult to resist the conclusion that arrest of diaphragmatic movement is the cause of massive lobar collapse in these cases; indeed, it seems almost impossible to account for the facts observed on any other hypothesis.

Journal of Tropical Medicine and Hygiene, London

October 1

20 Goundou. W. Burrows.
21 Investigation of Pellagra. L. W. Sambon.

Dublin Journal of Medical Science

October

22 Schinznach-les-Bains. J. Little.
23 Colloids and Some of Their Biologic Relations. W. G. Smith.
24 Present Position of Tuberculin Therapy. W. Leggett.

Glasgow Medical Journal

October

25 Advice to Patients in Bellefield Sanatorium, Lanark. J. W. Allan.
26 *Problems in Infant Feeding. L. Findlay.
27 Acute Leukemia. J. S. Dunn.
28 Strangulated Femoral Hernia. J. Morton.
29 *Double Central Blindness Following Injury to the Head by a Fall. L. Buchanan.
30 Old Glasgow Institutions with Medical Associations. H. A. M'Lean.

26. **Problems in Infant Feeding.**—During the past few months Findlay has gathered some information regarding weaning of babies. He quotes statistics relating to 200 cases. Of the mothers, 95.5 per cent. had milk at the beginning; 91.5 per cent. had sufficient milk for the first month; 69.5 per cent. suckled their children for at least six months; and 29 per cent. for twelve months or longer. Of the 58 children weaned before six months, 32 were taken off the breast during the first month; 14 during the second month; 8 during the third month; 3 during the fourth month; 1 during the fifth month. Of those weaned during the first month the causes were: disappearance of milk, 9 cases; abscess of the breast, 4 cases; puerperal fever, 3 cases; menstruation, 1 case; child being sent out to nurse, 3 cases; child not having the strength to suck, 2 cases; mother having rheumatism, 1 case; mother going out to work, 1 case; unknown, 7 cases. Weaning during the second month was occasioned by illness of mother in 2 cases; illness of child in 1 case; child being sent to hospital in 1 case; mother going out to work in 1 case; milk disappearing in 3 cases; milk not being considered good in 1 case; inflamed breasts in 1 case; child refusing to suck in 1 case; causes unknown in 3 cases. In the third month no cause was given in 3 cases; the milk disappeared in 3 cases; in 1 case the medical adviser considered the mother too weak to suckle; and in another case the child did not seem to be thriving. The child being sent to hospital with bronchitis, the mother developing mastitis, and the milk disappearing were the causes of weaning the three children during the fourth month. No cause was given for the case weaned during the fifth month.

The chief point of interest in the above statistics is the large proportion of children weaned during the first month, and it would thus seem, says Findlay, that if a mother can manage to suckle her child for the first month there is great probability that she will be able to continue breast-feeding for at least six months. In only 8 per cent. of all cases was the cause of weaning before six months really due to want of milk.

29. **Double Central Blindness.**—Buchanan's case is interesting, especially in view of the fact that, as a result of a fall on the street and striking the back of his head on the causeway stones, the man lost the power of central vision of both eyes while peripheral vision remained but little altered. Vision of each eye was very markedly reduced, being only 3/60 in the right eye and 1/60 in the left. Perimetric examination revealed the fact that there was but little contraction of the peripheral parts, but that there was a distinct central scotoma, of small size only, in each eye.

Clinical Journal, London

October 5

31 Abscess and Fistula. F. S. Edwards.
32 Meningococcus Meningitis. J. H. Thursfield.

Medical Press and Circular, London

September 28

33 Vagaries of Scarlet Fever. E. Wardman-Wilbourne.
34 Mongolianism. J. M. Bligh.
35 Bee-Sting Treatment of Rheumatism. J. Knott.

October 5

36 Certain Results of Cerebral Arteriosclerosis. J. W. Russel.
37 Abortive Treatment of Syphilis. H. Hallopeau.
38 Excision of Carcinoma of the Rectum by Combined Abdominal and Sacral Routes. R. A. Stoney.

Journal of Laryngology, Rhinology and Otology, London

October

39 Aural Tuberculosis in Children. W. Milligan.

Presse Médicale, Paris

September 28, XVIII, No. 78, pp. 721-728

40 Hydrotherapy during Pregnancy. M. G. Keim.
41 Swallowing of Air. (L'aérophagie.) M. G. Schreiber.

October 1, No. 79, pp. 729-736

42 The Humoral Doctrine in the Past and Present. (L'humorisme ancien et l'humorisme moderne.) C. Richet.

October 5, No. 80, pp. 737-744

43 Endovesical Segregation of the Urine and Catheterization of the Ureters. G. Luys.

Semaine Médicale, Paris

October 5, XXX, No. 40, pp. 469-480

44 Incomplete Forms of Exophthalmic Goiter. (Quelle est la signification nosologique des formes frustes de la maladie de Basedow?) F. Rose.

Beiträge zur Klinik der Tuberkulose, Würzburg

XVII, No. 2, pp. 151-277. Last indexed Sept. 17, p. 1060

45 Displacement of Organs with Chronic Pulmonary Tuberculosis. (Organverlagerungen bei Phthise.) E. Ruediger.
46 Vaccination of Cattle against Tuberculosis. (Impfung gegen die Tuberkulose der Rinder.) M. Klimmer.
47 Complement Binding in Tuberculosis. H. Much and H. Hoessli.
48 Simplified Record of Tuberculin Dosage. R. Muttray.
49 Development of Tuberculin Sensitiveness in Children. (Entwickelung der Tuberkulinempfindlichkeit beim Kind.) F. Hamburger.
50 Development of Sensitiveness to Tuberculin in Animals and Primary Local Manifestations of Tuberculosis. F. Hamburger and T. Toyofuku.
51 Tuberculin Cutaneous and Conjunctival Reactions with Varying Concentration of Tuberculin. J. Lossen.
52 The Tuberculin Cutaneous Reaction. (Therapeutische Bedeutung der v. Pirquetschen Impfung.) W. Münch.

Berliner klinische Wochenschrift

September 26, XLVII, No. 39, pp. 1773-1812

53 Experimental Research on Treatment of Strychnin Poisoning with Aid of Intratracheal Insufflation. A. O. Shaklee and S. J. Meltzer.
54 Pathology of Acute Articular Rheumatism. E. Mosler and B. Valentin.
55 *Floating Capsule Test of the Functioning of the Stomach. (Zur Untersuchung des Magens mit Wismutkapseln.) M. Cohn.
56 Recovery after Resection of the Pylorus in Four Cases. S. Derjushinski.
57 *Inherited Diatheses in Children. (Die Konstitutionslehre in der Kinderheilkunde.) P. Heim.
58 Serologic Research on Relation between Syphilis and Internal Disease. (Beziehungen der Syphilis zu Nerven- und anderen inneren Erkrankungen auf Grund von 573 serologischen Untersuchungen.) R. Ledermann.
59 Ehrlich's "606" in Out-Patients E. Kromayer.
60 Wassermann Reaction in Diagnosis of Syphilis. (Syphilis-Mikrodiagnosticum.) C. S. Engel.
61 Momburg Belt Constriction to Combat Postpartum Hemorrhage and to Obviate Manual Separation of the Placenta. F. Heymann.
62 Modern Tendencies in Treatment of Fractures. H. Coenen.

55. **Floating Capsule Test of Stomach Functioning.**—Cohn gives the patient a capsule containing 1 gram of bismuth and in a few minutes it can be seen at the lowest part of the stomach. The test meal is then taken, and another capsule with half a gram of bismuth is then swallowed. This floats on the surface of the stomach content until it finally lands beside the first capsule. With a test cauliflower meal the capsule sinks through the fluid portion of the stomach content and floats on the more solid stratum, while with a meat test meal there is no such stratification of the stomach content and the capsule floats on the top of the stomach content. He explains this by the stimulation of gastric secretion by the meat; this digests and renders the mass more homogeneous. It is thus possible to detect gastric achylia by this means, having the two capsules swallowed together. If there is no gastric secretion both capsules float side by side on the stomach content until it is all evacuated, while with gastric secretion and consequent digestion, the heavier capsule sinks downward earlier. Cohn was able to see by the moving shadow of the floating capsule the pulsation of the left ventricle in a case of aortic insufficiency. The capsule had been swallowed after a glass of milk. It is even possible in this way to distinguish the single phases of the systole and diastole.

57. **Constitutional Pathologic Tendencies in Children.**—Heim remarks that a bird's-eye view of the history of medicine in the last hundred years shows a periodical prevalence and recurrence of medical conceptions which he explains as the result of a periodical prevalence and recurrence of certain constitutional tendencies. They are not passing fashions of thought but the logical outcome of the conditions that confront practitioners in different decades. The vogue of venesection two generations ago is a typical instance of this; people were shorter, stockier, and more plethoric, and venesection often was urgently indicated. Now the predominance of the lean, the nervous and the anemic forbids venesection for the majority of patients although its importance under proper indications is recognized. Not only the conditions of life and hygiene, but also the character of the pathogenic microbes are constantly varying. Children used to thrive on milk, eggs, meat and butter, and some do so still; but, he declares, if we attempt to push such a diet for the children of the present day, fully 70 per cent. will grow thin and pale and lose their appetite. Any attempt to feed such infants with fat, especially the fat of milk, or any overfeeding is liable to be followed by the development of eczema, milk crust, urticaria, prurigo, recurring pharyngitis or coryza, bronchitis, adenoid vegetations, mucous stools, etc. With restriction of the ingestion of fat, the symptoms subside. Finkelstein ascribes this exudative diathesis to defective metabolism, but it is not necessary to go back of the simple fact that these symptoms are elicited by fat in the diet and tend to subside when the intake of fat is reduced. It is remarkable, Heim continues, that it is the fat of cow's milk which is most injurious; the infants can frequently bear pig fat or cod liver oil much better. He has seen eczema heal under a course of cod liver oil. There is nothing in these children to reveal the tendency to this diathesis until the manifestations develop. In children with the exudative diathesis the reaction to tuberculous infection assumes the familiar picture of scrofula. The larger part of the clinical picture of scrofula is an artificial product, the result of forced feeding with milk, eggs and butter or overfeeding of any kind, and this part of the clinical picture may be eradicated by dieting, while a course of tuberculin may modify for the better the tuberculous element in the syndrome. Scrofula is the exudative diathesis plus tuberculosis. This diathesis modifies likewise the reaction to all other infections. It is an everyday experience that such children take vaccination very hard and that they are particularly susceptible to "children's diseases," especially scarlet fever. This disease is less common than measles as many children seem to be immune to it, and since Czerny's views in regard to the proper diet and treatment of children with the exudative diathesis have been practically applied to the children in Breslau by himself and physicians trained in his service, the number of cases of scarlet fever in the town has fallen off to a remarkable extent. Heim goes still further and asserts that the severer form of scarlet fever, fatal in three or four days, occurs only in children with the exudative diathesis plus a neuropathic constitutional tendency. Malignant scarlet fever is analogous to the "fatal driving-in of eczema" which we now know to be the toxic sepsis of infants with the exudative plus the neuropathic tendency. The latter tendency, he continues, may be recognized by the floating tenth rib and flabby muscles, the general nervousness and unstable temperature. With this tendency alone a change from breast to cow's milk is often beneficial. The change to artificial feeding should generally be reserved for the pure neuropathic constitution. The latter is usually associated with the exudative diathesis, and in this event any fat in the artificial diet will do harm. In these cases the superposed injurious influence of both diatheses is apparent; no change of diet seems to benefit and some intercurrent infection is liable to carry off the infant. The indications in these cases are for exclusive or mixed whey or buttermilk diet. Prurigo is a symptom of the exudative diathesis, he says, but the itching reveals the neuropathic tendency, as also the croup and asthma in the laryngitis and bronchitis due to the exudative diathesis. Further research on prevailing constitutional tendencies viewed from a broad outlook will certainly, Heim declares, open new horizons for successfully influencing the health of the rising generation.

Deutsche medizinische Wochenschrift, Berlin

September 29, XXXVI, No. 39, pp. 1785-1832

63 Dysmenorrhea. A. Sippel.
64 Ehrlich's "606" in Syphilis. (Weitere Erfahrungen bei syphilitischen para- und metasyphilitischen Erkrankungen mit Ehrlich-Hata-Injektionen.) G. Treupel.
65 *Idem. (Einfluss des Ehrlich-Hataschen Mittels auf die Spirochäten beim kongenitaler Syphilis.) G. Herxheimer and F. Reinke.
66 Ehrlich's "606" in Malaria. H. Werner.
67 Minimum of Normal Metabolism. (Minimum des Erhaltungsumsatzes.) A. Loewy and F. Hirschfeld.
68 Constancy of Sustenance Metabolism. A. Loewy.
69 *Indications and Contraindications for Lumbar Puncture. H. Curschmann.
70 Typhoid. (Zur Klinik und Prophylaxe des Unterleibstyphus.) A. Zweig.
71 Bacteriologic Examination in Tuberculosis of Urinary Apparatus. G. Schuster.
72 Pepsin in the Urine as Sign of Gastric Cancer. (Harnpepsin als differentialdiagnostisches Kriterium zwischen Carcinoma ventriculi und Apepsia gastrica.) K. Takeda.

65. **Influence of Ehrlich's "606" on Inherited Syphilis.**—Herxheimer and Reinke examined post mortem the organs of two infants, about two months old, who had been given "606" two and four days before death, the condition being practically hopeless at the time. No normal spirochetes could be discovered in any of the organs and all the organs were free from them except the lungs; here spirochetes were found but all were agglutinated or degenerated or nearly or quite destroyed. These findings were remarkable in comparison with the large numbers of spirochetes found so constantly in the organs of children with such serious signs of inherited syphilis as these infants presented. The restriction of the spirochetes to the lungs may be due to a possibly longer survival in the presence of oxygen.

69. **Lumbar Puncture.**—In this address delivered at the annual meeting of the Mittelrheinischer Aerzte, Curschmann pleads for the more general adoption of lumbar puncture both for diagnosis and as a curative measure, extolling its value and insisting on its comparative harmlessness. He regards it as far more important for the early diagnosis of tabes or paresis than the Wassermann reaction in the blood serum. Only the cytologic and chemical examination of the cerebrospinal fluid gives decisive findings in these cases, disclosing or excluding these diseases by the local findings. In all forms of meningitis, he declares, lumbar puncture is of the greatest symptomatic and very frequently of direct curative importance, and should be the first thing done in every form of meningitis. Among the cases he cites to illustrate this is one of metastatic suppurative meningitis after erysipelas, a typical instance of a post-traumatic infection of the meninges after a fall on the back of the neck and head. The severe streptococcus meningitis rapidly healed after a single lumbar puncture releasing about 30 c.c. of fluid under a pressure of over 300 mm. He has also witnessed similar benefit in fibrinous-suppurative meningitis following pneumonia or influenza, and also prompt symptomatic relief when convulsions and other symptoms indicated merely increased pressure of the spinal fluid without inflammation. In the tuberculous form the outlook is less promising, but Stark and others have reported recoveries under systematic lumbar puncture, and Curschmann has encountered three cases of tuberculous meningitis in which the disease progressed with long remissions and necropsy revealed old and recent lesions in the meninges. The spontaneous improvement observed in these cases, although transient, suggests the necessity for more active measures in treatment of tuberculous meningitis, especially repeated lumbar puncture. Likewise in hemorrhagic internal pachymeningitis lumbar puncture may cure; this happened in two out of three cases of this variety, the recovery persisting to date, two and three years later, and the other patient was materially improved for several months. Neisser and Pollack have reported cures from puncture of the brain in such cases, but lumbar puncture should be given a trial first. The diagnostic importance and therapeutic efficiency of lumbar puncture for symptoms following trauma of the skull are demonstrated in other cases cited. The headache and vertigo subsided in some cases after the puncture even when the

fluid seemed to be normal, as in the case of one patient not punctured until five weeks after the accident. A traumatic neurosis had seemed inevitable in this case but the patient recovered completely after the puncture. He insists that if lumbar puncture were applied as a routine measure after every accident to the head, the present conception of the purely functional nature of the disturbances observed would often have to be revised. In his seven years' extensive experience with lumbar puncture he has observed only one threatening collapse and that was in an obese patient with syphilitic spastic paralysis who required camphor injections to combat the collapse that followed the puncture. Curschmann punctures with the patient reclining on his side and advises this position, at least for the very impressionable, for arteriosclerotics and patients with weak hearts. He had one tragic mishap; suppurative meningitis developed 4 days after a diagnostic lumbar puncture in a woman of 58 suspected of progressive paresis. The most serious contraindication for lumbar puncture, he continues, is the presence of a tumor or of accumulated blood in the posterior cranial fossa, especially in the cerebellum. But even with a tumor, lumbar puncture may give great relief and ward off choked disc and blindness. Oppenheim and others have reported fatalities from this cause and Curschmann had one similar experience, the lowering of the pressure in the spinal canal causing a small tumor protruding into the fourth ventricle to be sucked against the foramen magnum. It is possible, he adds, that if a sterile fluid had been injected under pressure into the spinal canal when alarming symptoms developed, the counter-pressure might have opened up the foramen again. In a certain proportion of cases, however, the supposed tumor proves to be merely a serous meningitis or hydrocephalus and lumbar puncture is directly curative. In one such case recently the suspicion of a tumor in the cerebellum prevented the proposed lumbar puncture but necropsy revealed nothing to explain the symptoms but internal hydrocephalus; the fluid might possibly have been easily drained away.

Münchener medizinische Wochenschrift

September 27, LVII, No. 39, pp. 2025-2072

73 Ehrlich's "606" in Syphilis. (Intravenöse Einspritzung des Ehrlichschen Mittels 606.) E. Schreiber.
74. Idem. J. Sellei.
75 Idem. G. Hugel and A. Ruete.
76 Idem. R. Sieskind.
77 Two Cases of Permanent Bile Fistula and Osteoporosis. H. Seidel.
78 Care Before and After Laparotomies. (Vor- und Nachbehandlung bei Bauchoperationen, insb. frühzeitige Aufstehenlassen.) A. Krecke.
79 Intermittent Limping with Ischemia Followed by Hyperemia. (Fall von Dysbasia angiosclerotica.) L. Fischer.
80 Method of Enhancing Action of Local Anesthetics. O. Gros and A. Läwen.
81 Acute Poliomyelitis Epidemic in St. Petersburg. M. Jogichess.
82 Medical Impressions of Eastern Africa. M. Hahn.

Wiener klinische Wochenschrift, Vienna

September 29, XXIII, No. 39, pp. 1367-1402

83 Bacteriologic Examination in Typhoid. A. Weisskopf.
84 Ehrlich's "606" in Syphilis in Children. R. Kalb.
85 Ehrlich's "606" in Syphilis. A. v. Torday.
86 Putrefaction Properties of Acholic Stools. (Studien über Darmfäulnis. VI.) A. Rodella.

Zentralblatt für Chirurgie, Leipsic

October 1, XXXVII, No. 40, pp. 1305-1336

87 Surgery of the Trifacial Nerve. (Operationen am Nervus trigeminus.) L. J. J. Muskens.
88 Infection of the Epicondyle of the Humerus. (Epicondylitis humeri.) H. Vulliet.

Zentralblatt für Gynäkologie, Leipsic

October 1, XXXIV, No. 40, pp. 1281-1320

89 *Sign of Twin Pregnancy. (Neues Zeichen für die Diagnose der Zwillingsschwangerschaft.) C. J. Gauss.
90 Medicolegal Estimate of Duration of Pregnancy. (Schwangerschaftsdauer vor Gericht.) W. Poten.

89. **Sign of Twin Pregnancy.**—Gauss calls attention to the frequent oblique anterior parietal presentation of the head of the first twin. The sagittal suture lies oblique and so close to the sacrum that the entire anterior parietal bone can be easily palpated. He describes three typical cases with illustrations; the pressure from the second fetus twists the head, already in the pelvis, of the first twin into an extreme Nägele oblique presentation. He states that there were 58 twin births in 4,014 deliveries at the Freiburg clinic and he found this sign in 54.5 per cent. of the 11 cases in which the head of the first twin presented. It can scarcely be recognized except by examination through the vagina. It does not occur with every twin vertex presentation as the first head may be twisted around as under normal conditions, but when it is present it may be accepted as a certain sign of twins.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 27, XXXI, No. 116, pp. 1225-1232

91 *Prophylaxis of Echinococcus Disease. P. Barabaschi.

91. **Prophylaxis against Echinococcus Disease.**—Barabaschi suggests immunizing dogs against the echinococcus and thus breaking the chain of this pathologic cycle. His experiments gave promising results, the antibodies generated in the females being transmitted to their puppies. He injected the animals for months with fluid from echinococcus cysts and then fed them with large amounts of tapeworm heads. They seemed to tolerate and expel the tapeworms without injury, no parasites being discovered in the animals when they were killed over 2 months later.

Riforma Medica, Naples

September 26, XXV, No. 39, pp. 1065-1092

92 Hyperchlorhydria. (Gastropatie dinamiche secretorie per eccesso.) G. Rummo.
93 Pharyngeal Hypophysis in Man. G. Arena.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

STUDIES ON LEPROSY. IX, Mosquitoes in Relation to the Transmission of Leprosy. X, Flies in Relation to the Transmission of Leprosy. By Donald H. Currie, Passed Assistant Surgeon and Director Leprosy Investigation Station. XI, Heredity Versus Environment in Leprosy. By Harry T. Hollman, Acting Assistant Surgeon Leprosy Investigation Station, P. H. and M.-H. S. Pub. Health Bull. 39, P. H. and M.-H. S., September, 1910. Paper. Pp. 50. Washington: Government Printing Office, 1910.

A SYSTEM OF SYPHILIS. In Six Volumes. Edited by D'Arcy Power, F. R. C. S., and J. Keogh Murphy, F.R.C.S. With Introduction by Sir Jonathan Hutchinson, F.R.S. By Various Authors. Cloth. Price, $13.50. Vol. V, pp. 356, with illustrations. Vol. VI, pp. 514, with illustrations. New York: Oxford University Press, 1910.

INDEX-CATALOGUE OF MEDICAL AND VETERINARY ZOOLOGY. Part 30. (Authors: T to Thon.) Pp. 2327-2386. Part 31. (Authors: Thooris to Utz.) Pp. 2387-2442. Part 32. (Authors: V to Vyner.) Pp. 2443-2508. By Ch. Wardell Stiles, Ph.D., Consulting Zoologist, Bureau of Animal Industry, and Albert Hassall, M.R.C.V.S., Assistant Zoologist, Bureau of Animal Industry. Paper. U. S. Department of Agriculture, Bureau of Animal Industry—Bull. No. 39. Washington: Government Printing Office, 1910.

APPLIED ANATOMY. The Construction of the Human Body Considered in Relation to Its Functions, Diseases and Injuries. By Gwilym G. Davis, M.D., Associate Professor of Applied Anatomy, University of Pennsylvania. Cloth. Price, $6. Pp. 630, with 630 illustrations by E. F. Faber. Philadelphia: J. B. Lippincott Co., 1910.

A SYLLABUS OF A COURSE OF CLINICAL LECTURES ON MENTAL AFFECTIONS. Designed as a Note-Book for the Use of Students. By J. Montgomery Mosher, M.D., Clinical Professor of Insanity, Neurology and Electro-Therapeutics, Albany Medical College. Cloth. Price, $2. Pp. 158. 1911.

A HANDBOOK OF THE SURGERY OF CHILDREN. By E. Kirmisson, Professor of the University of Paris. Translated by J. Keogh Murphy, F.R.C.S., Surgeon, Miller General Hospital for South East London. Cloth. Price, $7. New York: Oxford University Press, 1910.

ALCOHOLISM AND INSANITY. By Charles L. Gregory, M.D., Superintendent of the North Texas Hospital for the Insane. With an introduction by J. B. Gambrell, D.D., Editor Baptist Standard. Cloth. Price, $1.50. Pp. 159. 1910.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS. Vol. XXII. For the Year 1909. Cloth. Price, $5. Pp. 329, with illustrations. W. W. Potter, Secretary, 238 Delaware Ave., Buffalo, 1910.

DISEASES OF THE STOMACH AND UPPER ALIMENTARY TRACT. By Anthony Bassler, M.D., Visiting Gastro-Enterologist to the Peoples Hospital. Cloth. Price, $6. Pp. 836, with 108 illustrations. Philadelphia: F. A. Davis Co., 1910.

FRACTURES AND THEIR TREATMENT. By J. Hogarth Pringle, F.R.C.S. (Eng.), Glasgow. Cloth. Price, $5.50. Pp. 384, with 142 illustrations. New York: Oxford University Press, 1910.

CHRONICLES OF PHARMACY. By A. C. Wootton. In two volumes. Vols. I and II. Cloth. Price, $6.50 net. Pp. 760, with illustrations. New York: The Macmillan Co., 1910.

SEVENTH ANNUAL REPORT OF THE BARLOW SANATORIUM (Incorporated). Chavez Ravine, Los Angeles, Cal. Paper. Pp. 43, with illustrations. Sept. 1, 1910.